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European Tropical Forest Research Network

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NEWS

Innovative Financing Mechanisms for Conservation and Sustainable Forest Management

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Dear readers,

The development of new financing mechanisms to support sustainable forest management is gaining momentum. Income from ecotourism is reinvested into nature conservation, forest concessions are bought by international nature conservation agencies, and local communities receive payment for providing plant samples to pharmaceutical companies in search of medicinal substances. A few other examples are debt-for-nature swaps, trust funds for nature conservation, payment for watershed protection and carbon mitigation projects. These experiences represent the search for ways to modify market incentives in such a manner that sustainable forest management becomes more attractive than alternative land uses that are associated to forest conversion or degradation.

This issue of ETFRN News explores innovative financing mechanisms for conservation and sustainable forest management, whether in conceptual stage, under development, or operational. We define innovative forest financing mechanisms as new ways and institutional set-ups to transfer financial resources from actors who are willing to pay for the generation and maintenance of ecological services, to local actors willing to accept payment, in exchange for sustainable forest management, or for refraining from the use of forest resources. The overview presented here is not exhaustive, but it illustrates the large variety in mechanisms; the types of actors involved, the specific contexts for which they were designed and the types of benefits from environmental services they are capturing.

This newsletter is divided into seven thematic Sections. The subject of the introductory article in Section I is the role of economic valuation of forest environmental services in relation to the development of new mechanisms. Market mechanisms and measures enabling the increase of private investments and use of market-based instruments, are dealt with in Section II. Section III is dedicated to international transfer payments and the role of international (financial) institutions in facilitating the development and implementation of innovative financing mechanisms. The specific environmental services that seem to have the best potential for channelling financial resources towards sustainable forest management include carbon sequestration; biodiversity conservation; and hydrological services. Sections IV, V and VI present financing mechanisms based on these specific services. The corresponding articles often deal with market-based instruments promoting the development of new green markets. Finally, Section VII investigates the role of financing mechanisms supporting sustainable forest management with regard to sustainable livelihoods and poverty alleviation.

We hope you will find this issue a useful source of information on innovative financing mechanisms for sustainable forest management. The wide range of mechanisms and experiences presented gives an impression of the most urgent and promising issues being addressed today. Furthermore, we hope this information will be used to contribute to the further development and wider application of existing mechanisms, and that it will inspire researchers, politicians, resources managers and other actors to design new ones. If properly designed and put to work, including the crucial participation of local stakeholders, financing mechanisms are expected to play a key role in investing into nature's capital, while at the same time contributing to sustainable livelihoods from the local to the global level.

Pita Verweij, Copernicus Institute, University of Utrecht, The Netherlands

We are grateful to Pita Verweij for editing this issue of the ETFRN News. We also thank Tropenbos International for the idea to address this fascinating theme, and for the support which allowed Pita Verwij to edit this issue. Please note the themes and deadlines for the next issues on the back cover.

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Preface

Early in the year 2000 Tropenbos International suggested to devote this 2001/2002 winter issue of the ETFRN newsletter to "Innovative financing mechanisms for sustainable management of tropical forests". Tropenbos took great satisfaction in compiling and editing this issue.

With the growing awareness of the value of forest goods and services, the past decades have produced numerous concepts and methods for forest valuation. Though these methods have contributed to a better understanding of the societal values of the forests, they have not by themselves caused a major change in the course of actual land use processes in the tropics, characterised by deforestation and forest degradation. The driving forces behind land use processes are subsistence and direct financial revenues. These processes can not be curtailed by mere theoretical calculations of forest values. In the first place the beneficiaries of these perceived values are often different people and institutions from those who actually use forestlands. Secondly valuation must be translated into actual financing mechanisms that are in the direct interest of the actual forest users and those institutions receiving indirect financial benefits, such as governmental agencies which collect timber licence fees.

More recently the subject of financing forest goods and services has become the focus of debate in international fora. The translation of forest value estimations into actual financing mechanisms is generally perceived as a major challenge to contribute to the conservation and wise use of tropical forests. There is a magnitude of different forest values.
Translation into financing mechanisms may not be possible for the full array. But efforts are made all over the world to identify those values that can be captured in financing mechanisms.
Various concepts have been developed, others are on the drawing table and practical experiments on the ground have started.

The aim of this issue of ETFRN News is to take stock of what has been achieved and what is in the pipeline. The interest in the subject is reflected in the large number of interesting responses to our call for papers. I am pleased to note that the result is a document presenting a variety of mechanisms that addresses a good mix of forest values. Also the different stages from inception via research and development to implementation are represented. Finally there is more food for thought in the form of indications of possible directions for future research.

This issue will find its way to numerous readers all over the world. It will also serve as a background document for the joint Tropenbos-ETFRN seminar on Forest Valuation and Innovative Financing Mechanisms, March 2002. I am convinced that the content provides meaningful and stimulating information for all concerned with the conservation and wise use of tropical forest, in support of sustainable development and poverty alleviation.

Erik Lammerts van Bueren
Director, Tropenbos International

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I INTRODUCTION

This issue of ETFRN News presents examples of how in different countries and contexts, experiments are taking place with the development of innovative financing mechanisms aimed at the valuation of single or multiple ecological services. The introductory article below focuses on the relation between economic valuation and financing mechanisms. Other articles dealing with this relation are those by Bruno Locatelli and Guillaume Lescuyer in Section IV, and by Virginia Reyes and co-authors in Section VI.

Capturing the value of forest environmental services into financing mechanisms

By Pita Verweij

Several decades of intensive research on tropical forest ecosystems have generated a wealth of information about their values and functions. Economic valuation of forests has contributed to this knowledge, through assignment of qualitative and quantitative values to its goods and services. Besides producing goods for human consumption corresponding to direct use values, forests fulfil a range of regulation functions. Forest ecosystems play a key role in the regulation of climate, nutrient and energy flows, hydrological cycles, erosion and sedimentation processes, and natural hazard mitigation. Indirect use values of forests are closely related to these regulation functions and also include value for recreation. A special category of use value is option value, which is related to potential future uses. Examples of non-use values of tropical forests are the existence value or 'intrinsic' value of occurring species, the information value of biodiversity to scientists, aesthetic and socio-cultural values. For the realisation of values outside the direct use category, markets are mostly absent or poorly developed.

Accounting for non-market values

Although among scientists and politicians there is increasing awareness that the overall value of forests to mankind is mostly underestimated, this knowledge has hardly led to sustainable use and conservation of tropical forests. Sustainable forest uses have in most cases been insufficiently attractive from the economic point of view. Commercial timber exploitation, oil palm plantations, and livestock production are held responsible for the continuously high rate of deforestation. The financial profitability of alternative uses should therefore increase. A common assumption is that if non-market values of forests (indirect and non-use values) would be adequately accounted for and captured into financing mechanisms, this could promote sustainable forest management. The question however is, to what extent economic valuation can actually be used as a basis for the development of operational financing mechanisms. How can theory be put into practice?

Market prices of forest goods and services

Several monetary valuation methods such as cost-benefit analysis are based on market prices and related proxy variables. These methods are therefore appropriate to evaluate direct use values of those forest resources that are traded on existing markets. For timber and fish for example, (local) markets are often well developed. When direct use values are not realised, this is frequently related to open access resources or poorly defined property or use

rights. In those situations, timber and non-timber forest products are often exploited at rates that are ecologically unsustainable, leading to the rapid decrease of the resource base and its corresponding value.

Limitations of cost-benefit analyses

For cost-benefit analyses based on market prices, an important limitation is that most environmental goods are not traded in markets, so their economic value is not revealed in market prices. Another type of criticism on both methodology and outcomes refers to a variety of market imperfections. Environmental costs are hardly internalised in the establishment of market prices. Adverse government subsidies that promote unsustainable land use practices tend to distort markets and the same holds true for trade barriers. A lack of information can also contribute to the inadequate functioning of markets, resulting in markets that lag behind the possibility of profitable and sustainable production of goods and services.

Furthermore, outcomes of cost-benefit analyses are very much dependent on choices regarding the time horizon and applied interest rate. How can the costs of current carbon sink projects be compared with their benefits that will extend over centuries? Future interest rates cannot be assumed to remain fixed. Newell & Pizer (2000) showed that including the effect of interest rate uncertainty could raise valuation outcomes by as much as 95% relative to conventional discounting at a constant rate.

Contingent valuation

For the assessment of indirect values, non-use values and option values, different types of valuation methods are required. The contingent valuation method is frequently used to assess people's willingness to pay for the conservation of nature areas, or alternatively, the willingness to accept negative impacts on the natural resources. Contingent valuation is the method most commonly used to elicit quantitative information on aesthetic, ethical and spiritual benefits, but the method as such is rather controversial. Because validation of willingness to pay is hardly possible in terms of real payments, the subjectivity of these inventories is criticised, as is the case for its strong dependency on contextual factors.

Innovative financing mechanisms

The realisation of non-market values related to forest environmental services requires new financing mechanisms that are additional to the more traditional market mechanisms based on direct use values. Innovative forest financing mechanisms represent new ways and institutional set-ups to transfer financial resources from actors who are willing to pay for the generation and maintenance of ecological services to local actors willing to accept payment, in exchange for sustainable forest management or for refraining from the use of forest resources. A complicating factor is that the costs of maintaining forest environmental services are generally borne by few, while the benefits accrue to a wide variety of stakeholders at different levels. If properly set-up, innovative financing mechanisms have the potential to increase the monetary value of forests, thus providing sustainable forest management alternatives to local communities.

Valuation and land use decisions

A challenge for the future will be to link objectives of biodiversity conservation and local development to the generation of additional ecological services. The land use systems involved are key elements in achieving this. Those forest management systems that are able to fulfil a range of functions, and thus generate a variety of

benefits, are expected to be financially more competitive in the long run. Existing sustainable management alternatives should form an important starting point. In the evaluation of alternative uses and decision options, economic valuation provides policy makers with a useful tool by comparing and measuring the various benefits from alternative (forest) uses.

Participation and financing mechanisms

The actual land users are expected to base land use decisions on criteria of tangible financial benefits rather than on promising valuation outcomes (which might be related to potential economic benefits in the future). Accordingly, development of practical financing mechanisms is considered crucial. Financing mechanisms are often set-up in a top-down fashion. But the success of their implementation will depend on the choices of local actors to adopt sustainable forest management systems or to contribute to conservation. Therefore, participation of local communities in the development of effective financing mechanisms should be ensured. Incentives for sustainable forest management and conservation can only be effective if property rights are well defined and if land users are entitled to receive benefits arising from the ecological services they maintain.

Local actors should not only receive economic benefits in return for their contribution to the preservation of ecological services, but their socio-cultural values and dependency on the natural resource base of forests for subsistence should also be taken into account. The forest values as perceived by local communities, government institutions, NGOs, private companies, and the global community should be addressed in the institutional set-up of proper financing mechanisms. In this context, valuation has an important role to play in facilitating sound investments into nature's capital.

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II INTERNATIONAL FINANCIAL INSTITUTIONS AND MECHANISMS

This section of the newsletter is dedicated to financing initiatives at the international level. Two examples of the role played by international financial institutions are provided. Gunars Platais presents the experiences of the World Bank in promoting the payment for environmental services in Latin America, by supporting the design and implementation of related projects. Kari Keipi of the Inter-American Development Bank describes the mechanisms of debt-for-nature swaps involving international environmental NGOs and national governments, and green venture capital funds. Other examples of financing mechanisms, in which international nature conservation organisations are involved, are given in Section V (Financing biodiversity conservation). Adrian Whiteman presents the findings of an FAO project aimed at collecting and exchanging experiences from different countries of the African continent. Maharaj Muthoo proposes the set-up of a new international fund, the Global Forest Fund. Finally, Barin Ganguli advocates the

approach of consortium financing as a co-operative effort of international funding institutions aimed at sustainable forest management.

Current work on environmental services at the World Bank

By Gunars Platais

Environmental services originate in natural assets (soil, water, plants, other living organisms and the atmosphere) providing mankind with economic, financial, ecological and cultural benefits. More often than not these benefits are taken for granted. The hydrological services provided by forests, such as clean and regulated water flow, and reduced sedimentation, for example, are only noted when natural disasters, flooding, siltation of reservoirs and scarcity of water occur as a result of the removal of forest cover.

That such services should be lost despite their value is easy to understand: land users typically receive no compensation for the services their land generates for others, and consequently do not take them into account in making land-use decisions. Recognition of this problem has led to efforts to develop systems in which land users are compensated for the environmental services they generate (Pagiola, 2000). This typically would create additional income streams for land users who are often poor and would make benefits of environmental and natural resources explicit. The World Bank is assisting various countries in this endeavor. Thus far this work is mostly focused on Latin America although initiatives in other regions are currently being explored.

Costa Rica has the most advanced system of payments for environmental services. Land users who protect natural forest or reforest their land receive payments of about US$ 50 per hectare per year. These payments are financed from energy taxes, the sale of carbon offsets, and the international donations for biodiversity conservation.

In Ecuador, municipal authorities in Quito, Cuenca and Pimampiro, recognizing the environmental services provided by surrounding ecosystems are allocating part of their revenues to financing protection activities in the watersheds from which they receive drinking water (see Hofstede and Albán in this issue). The World Bank is assisting the government in the preparation of a project on payments for environmental services from private lands. The project is designed to work on different ecosystems and is expected to provide input to the further development of other such initiatives in the region.

El Salvador, which recently experienced the disastrous effects of Hurricane Mitch and several earthquakes demonstrated the importance of integrating natural resources management into the decision making process. The World Bank is assisting the country in the design of a project whose objectives are to enhance and protect the environmental services generated by El Salvador's natural ecosystems and conserve the globally significant biodiversity they contain, through the development of a system of payments for environmental services and the consolidation, expansion, and restoration of natural protected areas.

In Brazil, the Prototype Carbon Fund is supporting an innovative mechanism through which biodiversity conservation benefits are expected. The Plantar greenhouse gas emission reduction project is expected to enhance biodiversity conservation in inexpensive, quantifiable ways, providing an additional benefit to

project investors. The Plantar properties that will produce charcoal for pig iron smelting with new plantations of high-productivity, clonal Eucalyptus stands, also support *cerrado* savannas in various stages of recovery. The global importance of *cerrado* ecosystems is high. Plantar's most important contribution to biodiversity conservation is its existing system of fire surveillance and control, which is allowing cerrado remnants on its properties—and perhaps on neighboring properties—to partially recover their original plant and animal composition (Nepstad 2001).

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Innovative forest financing in Latin America [1]

By Kari Keipi

Forestry can be a profitable business in Latin America. This is evident in the increasing flows of international investments in the forestry sector of the region. In looking at the profit issue, the question of time horizon is of utmost importance. The time frames for sustainable forest practices are often longer than for other types of investments, and affect their relative profitability compared with other land uses. Yet the returns on this type of investment accrue much more broadly than solely to the private investor's pocket book. The returns also accumulate in the form of ecological and environmental benefits to local, regional and global societies.

Many types of investment strategies involve the public sector, the international community and various public/private partnerships. This article focuses on two mechanisms: debt swaps used mostly at national level and private sector investment via venture capital funds for individual companies.

Debt related mechanisms

In certain cases, a debt situation can be used by a nation to leverage financial resources for conservation investments. For instance, the debt can be bought at a discount on secondary markets by a third party (usually an environmental NGO) and be swapped with the debtor government for conservation activities. It is also possible for the creditor government to agree to forgive or exchange the debt (at a discount) in return for local currency to be used in conservation. This is known as a "debt buy back" or "debt forgiveness". Since the first debt for nature swap in 1987, some US$1 billion has been leveraged at global level for conservation. Bayon et al. (2000) list 26 debt swap operations with an average face

value of US$ 4.3 million in eight countries of Latin America and the Caribbean (1987-1996). The purchasers were international nature conservation organisations or governments such as Japan, The Netherlands, Sweden, The United States, and Finland.

The IDB has participated in one debt-related issue, to finance the Ecological Conservation Program of Mexico City in 1992. The Government of Mexico used a US$100 million loan to extinguish an outstanding foreign debt by redeeming its long-term bonds in the secondary market. These bonds were sold at a discount, which in this case is 82.5% of face value. Hence, for the amount loaned by the Bank, the borrower could retire US$ 121 million of outstanding long-term foreign debt. All proceeds of the transaction and an additional US$100 million of local counterpart financing were used for the funding of the Mexico City Ecological Conservation Program. The key activities were investment in urban trees and park management in order to reduce the negative environmental impacts of urban sprawl and air pollution.

Green businesses and certification

The past ten years have seen the creation of companies with missions favouring both business and the environment. An increasing number of business leaders now agree that the environment (and its problems) can be looked upon as one of the most important commercial opportunities of the coming decades. In order to support the development of green businesses, appropriate regulatory frameworks should be in place and new financial instruments are to be developed. This will be especially important when it relates to innovative small and medium-sized biodiversity-based enterprises operating in developing countries, because the collective impact of these enterprises on the economy - and on the global environment - is expected to be huge.

In this context, certification systems such as those for timber and organic products are crucial. Certification often allows environmentally friendly products to be sold at a premium. The so-called “green trade” that certification promotes helps pay for the added cost of sustainable production methods and improves potential investor returns. Increasing demand for these products has helped establish venture capital financing for the firms involved in their production and trade.

Venture capital funds

A way of addressing the special needs of green businesses is through equity or quasi-equity investments via venture capital funds or sector investment funds. Like traditional venture capital funds, these tools are designed to provide capital in return for equity or quasi-equity positions in promising nature-based businesses. While green venture capital funds can be high-risk/high-return operations, they can also serve to provide much needed capital and business expertise to small conservation based enterprises. Two recent examples of venture capital funds promoting conservation and the sustainable use of biodiversity are the regional Latin American Terra Capital Fund and the Central American EcoEnterprises Fund. Both are partially financed by the Multilateral Investment Fund (MIF) of the Inter-American Development Bank.

These funds are pioneering initiatives designed to experiment with the role that venture capital can play in supporting biodiversity conservation. Depending on their success and profitability, they may help stimulate similar undertakings in the region. The two initiatives are also mutually supporting. Whereas the EcoEnterprises

Fund will focus on start-up ventures, which tend to be smaller, riskier and more difficult transactions, Terra Capital Fund will probably end up working with larger projects. This means that projects started by EcoEnterprises may eventually "graduate" into support from Terra Capital Fund.

Elements to increase forest financing

The demand for financing largely depends on expected profitability. Consequently, it should be clearly shown how forestry sector operations could be made profitable and competitive with other sectors. The purpose is not to create new direct subsidies through lower interest rates and other softer financing terms. Neither is the goal to establish expectations of lower profitability requirements for these investments but to direct the financing to areas with high levels of private and socio-economic profitability. Because of the strong role of positive externalities, which are present in many forest investments, there is a need to broaden the view of profitability assessments beyond the traditional timber management investments.

Other key measures to induce private sector investments in forestry are related to reducing barriers to sustainable forestry due to inadequate policy frameworks. National policies and legislation need to provide an internationally competitive and conducive business environment. Secure land tenure is fundamental but tax reforms and reducing unnecessary regulations and bureaucracy are also important issues in many countries of the region. However, a conducive business environment does not mean laissez-faire. Adequate forest management standards need to be in place and enforced to ensure sustainability.

The forest sector's capability for self-financing is significant, but the potential is far from being reached due to the undervaluation of forest resources. Private sector operations can range from timber production to non-timber forest products, ecotourism, and producing various services (such as watershed protection and prevention of natural disasters). Emerging new financing instruments in support of the trade of benefits from forest environmental services have unexplored potential. The funding role of businesses in the private sector should be enhanced through innovative financing instruments, two of which have been presented in this article. New private sources and mechanisms are needed as public sector funding is falling short of the financing demands for SFM and conservation.

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1The opinions expressed in this article do not necessarily reflect the official position of the Inter-American Development Bank.

Fiscal policies in support of the forestry sector in Africa

By Adrian Whiteman

As part of an EC-FAO Project on sustainable forest management in Africa, FAO is working with African countries to examine the effect of fiscal policies on the implementation of sustainable forest management. Twenty-eight countries have participated in this project so far and produced reports on their forest revenue systems and government expenditure in the forestry sector. In total, these reports cover most of the African countries with significant forest resources. As part of their reports, authors were asked to examine issues such as: the effects of their forest revenue systems on sustainable forest management; the effects on forestry of fiscal policies in other sectors; and innovative sources of finance for sustainable forest management.

Current status of innovative financing

The country reports produced for the project revealed that innovative or new sources of finance to support investment in the forestry sector are currently not very well developed in Africa. However, a few countries did report some innovative mechanisms that they have been exploring. In Africa, the main sources of finance for forestry administrations can be categorized as: charges levied on the major forest products and services; the state budget allocation to the forestry administration; and donor grants and loans for forestry projects. There is no precise definition of innovative financing, but this can be broadly described as any mechanism by which the forestry administration attracts new sources of investment in forest management outside of these traditional channels. Three main sources of innovative financing for forestry administrations were identified: revenues from new types of forest products and services; charges collected from other sectors; and new sources of public and private investment.

New types of forest products and services

It is generally accepted that forests produce a wide range of goods and services, but that markets do not exist for many of these outputs. Attempts have been made in a number of countries to try to develop markets for some of these outputs, but progress in Africa has been limited to date. This approach tends to work best where the consumers of these products or services can be clearly identified and an agreed value or price for the output can be established.

In terms of revenues from new types of products and services, the forestry administration in Malawi has started to rent unused forest workers houses to forest visitors. In Tanzania, forest land can be leased for a wide range of commercial activities (such as telecommunication facilities, mineral water extraction facilities, hydropower and large-scale irrigation facilities). Nearly all other African countries only collect forest revenue from traditional wood and non-wood forest products and services. The collection of charges from ecotourism activities is quite common in a number of countries (for example in Ethiopia, Burundi and Niger), but the revenue from these activities is mostly very small and it is questionable whether this can be considered as an "innovative" source of finance.

Charges collected from other sectors

Some of the non-market outputs from forests are more general and it is not possible to identify precisely who benefits from these outputs or to establish markets

for them. An alternative to trying to charge for these outputs individually is to collect charges in the sector that benefits from the forestry sector and to transfer this revenue to the forestry administration.

An example of this is provided by Burkina Faso, where there is a regulation that states that 3% of the revenue collected from taxes on tobacco, matches, petrol and oil should be put into the Forestry Equipment Fund. However, the report from Burkina Faso notes that this regulation has not been implemented. There is also a proposal in The Seychelles that tourists would have to buy a "Gold Card" for US$ 100 when they enter the country. The card would be valid for life and would allow them to enter recreation sites (including forests) for free. The revenue such generated would be used to support management activities at these sites. Other than these two examples, all of the other countries only seem to collect revenue from the forestry sector.

New public and private sources of investment

The two examples above have described new types of revenue. Another form of innovative financing is to encourage new types of investors into the forestry sector. For example, partnerships can be developed between the state and the private-sector or non-governmental organisations (NGOs) to invest in forests for benefits other than commercial timber production (e.g. conservation, recreation or water catchment protection). In the commercial sector, there are new types of investors who are looking for opportunities to invest in environmentally friendly wood production. In addition, the priorities of donors are changing gradually over time. Funding for traditional forestry projects is declining as donors focus their attention on broader environmental concerns and poverty reduction. The forestry sector can contribute to these programmes, but foresters must develop new and innovative types of projects that will attract such funds.

The country reports do not mention any mechanisms to attract new types of private investment in forestry. However, there are some examples of new types of funding partnerships in countries, such as forest parks that are managed with the support of international NGOs (e.g. Conservation International's work with local counterparts in Kakum National Park in Ghana). If broader revenue-sharing and joint forest management with local communities is considered as an innovative source of finance, several African countries have either already implemented such schemes (Niger for example) or are planning to do so (Zambia) and many of the country reports described such schemes. A few countries have obtained funding from major international environmental funds, such as the Global Environmental Facility (GEF), but most foreign assistance to the forestry sector still comes in the form of loans and grants for traditional forestry projects.

Regional workshop in Abuja, Nigeria

In November 2001, countries discussed how they could improve the financing of sustainable forest management at a technical workshop on fiscal policies and the forestry sector in Abuja, Nigeria. Amongst other topics, the potential for innovative financing mechanisms in the forestry sector in the region was examined and countries produced some ideas about how this might be developed further. Countries discussed the potential to develop new sources of finance, the constraints that they might face and the sorts of technical assistance that might be helpful.

Countries suggested that the following new sources of finance might have the most potential: charges on non-wood forest products (e.g. bee-keeping, fruit, traditional products), charges on non-forest uses of forest land (livestock grazing, ecotourism and general tourism development), bioprospecting, carbon sequestration, watershed protection, and debt-for-nature swaps. Another interesting suggestion was that taxes might be levied from consumers of forest products rather than producers. Countries noted that most of the barriers to such developments were likely to be political or institutional (e.g. conflicts of interest, uncertainty over land tenure, lack of political support) rather than technical. In terms of support, countries felt that assistance to overcome some of these problems would be most useful in the form of training and local and international networking to share experiences and learn from each other. These recommendations will be followed-up by FAO in selected countries in the current year.

Further information can be found under "Planning and Statistics" at:
http://www.fao.org/forestry/fo/subjects/subj-e.stm, or can be obtained from:

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Global Forest Fund to combat tropical deforestation and rural poverty

By Maharaj Muthoo

The Millennium Summit has resolved "to intensify our collective efforts for the management, conservation and sustainable development of all types of forests". Of all the forests that continue to be lost irrevocably are those in the tropics -at the rate of over ten million hectares annually, i.e. an area slightly larger than the size of Portugal.

One of the challenges facing the world community thus is to combat tropical deforestation and the concomitant loss of the earth's richest biodiversity resource, and to create mechanisms for the sustainable management and conservation of the remaining forests in the tropical countries. Most of these countries are however beleaguered by poverty, disparities and debt. For example, 27 countries that between them account for 97 percent of the remaining tropical forests owe some US$ 670,000 million. The burden of debt servicing and repayments not only pre-empts any opportunity for investment in forest conservation, but the forest is seen as a source of green gold to deal with today's pressing plight. Not only do we need a global forest funding mechanism to embody debt-for-nature swaps, but also to adopt sector-wide approaches (SWAps) for harmonisation and donor co-operation vis-à-vis the priority requirements of the needy developing countries.

Needs of forest dependent people

In forest dependent communities in the South, there are about 500 million poorest-of-the poor with an income of less than a

dollar a day. The people living in and around the forests include nomads, tribal people, indigenous groups, small entrepreneurs, shifting cultivators, pastoralists, and jobless and landless rural people. They are among the most powerless and disenfranchised, and often witnessing unsustainable logging with almost no stake in the forest sustaining their lives. They use four fifths of wood harvested for fuelwood, without having access to other sources of energy. Forest dependent communities are vulnerable to violence, disease, hunger and ignorance, and comprise a large number of ecological and economic refugees.

Sustainable livelihoods

Resources are lacking in the tropical developing countries to promote sustainable livelihoods for the landless and jobless millions eking out their existence from the overexploitation of non-timber forest products, overgrazing and shifting cultivation in forest clearings. Concerted international assistance is warranted for the measures that they must install to aid and empower local communities and to break the vicious circle of deforestation and destitution. This is also needed to create conditions which motivate and compensate developing countries for the protection of high conservation value forests, and for managing tree cover to promote carbon sequestration and mitigate climate change.

It must be recognised that poverty eradication, good governance and sustainable forest management are mutually dependent and reinforcing. This gives clues to innovative financing mechanisms, which need not be restricted to forestry issues per se. With a holistic approach to environmental, social and economic dimensions of sustainable forest management, financing for tropical forest conservation and development should become available from the increasingly important poverty alleviation and sustainable human development programmes. In support of this, capacity should be created for those concerned with forests and forestry in order to present their proposals in a cross-sectoral context, both to international donors and to the national authorities.

Global Forest Fund

This calls for a global vision with local action in a multidisciplinary manner, with synergies among institutions and stakeholders concerned about the security of the planet. A Global Forest Fund (GFF) is proposed to combat tropical deforestation and to create an enabling environment for the conservation and management of the remaining tropical forests by simultaneously reducing poverty and vulnerability of the poor forest dependent communities. Resources for the project portfolio to be financed through GFF can be drawn not only from the environment, poverty reduction and rural development programmes of multilateral and bilateral donors and International Financial Institutions (IFIs), but also from enlightened foundations, NGOs and other civil society stakeholders. Collaborative partnerships and alliances will be established with them and other players interested in the issues of GFF or complementary with its goals and objectives. Examples are GEF, UNFF, UNCCD, UNDP, UNEP and FAO, or Tropenbos, CIFOR, ITTO and ICRAF, or WWF, IUCN, FOE, Greenpeace, Sierra Club, Conservation International, ODI, OXFAM, Actionaid, or Novartis, Ford and Rockefeller Foundations, or academic institutions and centres of excellence in pertinent subject matters, including WRI and WBCSD.

Aid and trade benefits

With heightened awareness among

consumers -which the GFF should aim to promote, among other things- about the prevailing unethical trade in tropical forest products, about the impact of unscrupulous logging, mining and oil exploration, and inappropriate infrastructure projects in fragile tropical forests, GFF should be attractive to the private sector in view of the emerging ethos of corporate social responsibility. This may be linked to certification as a market tool for sound forest management, importantly noting that foreign direct investment in developing countries and emerging economies is more than ten times that of the ODA, which has been hovering at around US$55 billion. In view of the recent resolve of the international coalition, it is hoped nevertheless that the donor fatigue of the nineties may soon be replaced by a reinvigorated flow of aid and trade for benefiting the poor in order to stem disparities, to build an overarching solidarity and to safeguard the society.

It is proposed to launch the Fund at the Johannesburg World Summit for Sustainable Development with some commitments already obtained for a revolving fund of US$ one billion.

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Consortium funding aimed at sustainable forest management

By Barin N. Ganguli [1]

Relative to Overseas Development Assistance (ODA) as it is currently delivered, achievement of "new and additional financial resources" for forestry in general and sustainable forest management (SFM) in particular will have to come from the private sector. A consortium approach, involving co-operation in funding SFM among public bilateral and multilateral institutions and the private sector (profit and non-profit) is being proposed as a potential mechanism that may deserve systematic effort. This concept was discussed in the Expert Meeting on Financing SFM in Oslo in January 2001, organised by the United Nations Forum on Forestry (UNFF). The present article describes the consortium approach as a way to more effectively mobilise international funds for SFM. Some examples of successful consortium arrangements in SFM with particular reference to tropical forest and natural resources are given. Its advantages and disadvantages in comparison to single donor funding are evaluated, and some issues to enable further debate on the subject are listed.

The consortium approach

A consortium in the context of financing SFM can be defined as a broadly inclusive co-operative effort, among all relevant funding institutions, aimed at assisting countries (notably developing countries and countries with economies in transition) to achieve SFM by leveraging new, additional and stable funding to enable investment in activities that hitherto could not be addressed by (groups of) funding bodies.

Consortium as a concept for funding investment is not new. Successful consortia have been formed by multilateral development banks, bilateral donor agencies and governments for bridging the financing gap of irrigation projects, natural resources development projects and also in feasibility studies of investment projects, in principle with a commitment to finance the ensuing investment projects. However, these consortia are normally formed ex-post after the projects have been formulated. Currently, successful consortia are being formed to combine resources of the governments, development banks, commercial banks and private investment funds to finance projects on infrastructure, energy and industries. In several countries of the world, the private sector has also formed successful consortium partnerships for financing oil and gas pipelines.

Examples of consortium funding

Three illustrative examples of successful consortium funding of natural resources projects in tropical countries are provided to validate the argument:

- The Integrated Pulp Mill Project in Indonesia, with an annual capacity of 420,000 tons. The project involved seven institutional lenders and 24 commercial banks in a consortium that provided US$ 994.37 million out of US$ 1.34 billion, which was the total cost of the project. The project was aimed at sustainable harvest from plantations; the integration of biodiversity preservation aspects in the management of the 250,000 ha of forests; and sustainable logging.
- The Coral Reef Rehabilitation and Management Program (CORMAP) in Indonesia. The preparation of this program has brought the World Bank, the Asian Development Bank, Global Environmental Facility, Australian Agency for International Development and Japan International Co-operation Agency under a broad funding arrangement. The objective of the program is to develop a coral reef management system in Indonesia.
- Protection and Management of Critical Wetlands in the Lower Mekong Basin (LMB). This multi-national and multi-donor project preparation for an ensuing investment project focuses on two wetlands of regional importance in the LMB. Financing agencies are Japan Special Fund through the Asian Development Bank (US$ 1 million), the Government of Finland (US$ 0.65 million), and Cambodia and Laos (US$ 0.42 million). The cost of the total investment project may be of the magnitude of US$ 35 million.

Pros and cons

Several advantages of consortium funding can be mentioned. If well implemented, the consortium approach could contribute both to mobilisation of new and additional financial resources. The magnitude of the challenge to achieve SFM is overwhelming for any one donor. Furthermore, it could raise the effectiveness of existing mechanisms: the approach is considered a potentially superior alternative in effectiveness to donors operating “all by themselves” in development co-operation. Funding agencies, including the private sector tend to lean towards a limited number of aspects of SFM, however SFM requires a range of skills and capacities that few, if any, development agencies can singly deploy with any confidence. Finally, donors working separately, each with different calendars and reporting needs, procedural requirements and shifting priorities tend to create insupportable burdens upon the beneficiaries.

The disadvantages of this approach arise when partners are individually insistent on

each retaining their prevailing *modus operandi*. This makes it difficult to be responsive in a unified manner. Another disadvantage is that large development projects often pay inadequate attention to environmental sustainability and social aspects. This argument was used by environmental organisations in Indonesia to criticise the Integrated Pulp Mill Project. Thus, a consortium approach does not necessarily avoid or reduce negative environmental and social impacts of large projects.

Issues for further deliberation

In order to explore the idea further, the following are considered issues for further deliberation:

- Improving understanding of the consortium approach;
- Elaborating working arrangements for consortium approaches;
- Building a constituency for SFM through the consortium approach for forestry in general: in this way, interest in funding should grow;
- Making private sector involvement in SFM a paying proposition so that this potentially major player can become engaged; and
- Ensuring environmental sustainability and participation of local communities.

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III MARKET MECHANISMS AND ENABLING MEASURES

This section focuses on market mechanisms that contribute to payment for multiple environmental services, and policy and other measures that enable or facilitate them. On the basis of a large number of cases, Natasha Landell-Mills and co-authors review the experiences with the development of market mechanisms, and their role with regard to poverty alleviation (see also Section VII on sustainable livelihoods and poverty alleviation). Vag-Lan Borges analyses the potential for further development of green markets for non-timber forest products in the Brazilian Amazon. Aurelio Ramos describes the Biocomercio programme, a facilitating mechanism in support of the development of green enterprises in Colombia. Jyrki Salmi who has been involved in the formulation of National Forest Programs and forest sector financing strategies in various countries, reviews the lessons learnt in creating enabling environments to increase private investments and the use of market-based instruments. Carmenza Robledo describes a pilot project in Colombia involving different partners, which is aimed at the development of the financing mechanism of environmental shares to enhance private investment in sustainable forest management. Finally, Sections IV, V and VI of this issue also present examples of market mechanisms, which are restricted to the delivery of specific environmental services.

Silver bullet or fools' gold? Developing markets for forest environmental services and the poor [1]

By Natasha Landell-Mills, Ina Porras & Joshua Bishop

Market approaches to environmental management are increasingly common in all sectors of the economy. Forestry is no exception. As forestry sectors around the world have opened their doors to the private sector, governments have been increasingly attracted to market-based instruments as tools for guiding private investment. Of the many instruments available to policy-makers, by far the most ambitious to date is the development of markets for forest environmental services, such as carbon sequestration, biodiversity conservation, watershed protection, and landscape values. Markets are thought to offer an efficient mechanism for promoting and financing forest protection and sustainable forest management.

Gaps in knowledge on market development

However, policy-makers' enthusiasm for market development is not matched by practical understanding. Very little guidance is available on the mechanics of market evolution, or on the impacts of markets for human welfare. Of particular concern is the lack of knowledge related to what market creation means for the poor. This is both a moral and a practical concern, as governments are charged not only with protecting the environment but also reducing poverty.

By undertaking a global review of emerging markets for carbon sequestration, biodiversity conservation, watershed protection and landscape beauty, a forthcoming review paper seeks to shed light on five key questions relating to market development:

- What form do markets take?
- Why do markets evolve?
- How do markets evolve?
- What does market development mean for human welfare?
- What do markets mean for the poor?

In total, 287 cases are reviewed from a range of developed and developing countries in the Americas, Caribbean, Europe, Africa, Asia and the Pacific. While experiences vary, the review points to several key lessons:

Defining commodities is fraught

While commodities in existing markets are easily identified, this is often one of the most challenging aspects of market creation. It is also one of the most important steps for determining whether or not the market will take off and be sustained. In the case of environmental services, commodities must overcome the hurdles of non-excludability and non-rivalry to make the service marketable. They must also move in line with services such that payments for the commodity translate into payments for the service. Achieving these twin goals is extremely difficult.

Markets are multi-stakeholder affairs

While the private sector tends to be the main player, local NGOs, communities, governments, international NGOs and donors also play key roles as buyers, sellers, intermediaries and suppliers of ancillary services.

Markets remain immature, but momentum is growing

In the majority of situations markets remain nascent affairs characterised by unsophisticated payment mechanisms, low levels of price discovery, high transaction

costs and thin trading. Yet, the picture is changing. Growth in pooled transactions has given the market a boost as more and more buyers come together to spread risks and the emergence of 'over-the-counter' trades reflects a growing confidence amongst suppliers. Gradually, case-specific negotiations are being replaced by trading systems that seek to promote a greater volume of payments at lower costs.

Global services do not require global markets

The extent of the market depends on the nature of the service and on market design. Given the difficulties of defining property rights and regulatory oversight, local level markets for global services may offer the best starting point for market development.

Markets are nested

Markets do not exist in isolation, but are moulded to fit existing institutional landscapes. Successful markets often depend on the emergence of supporting regulatory and co-operative arrangements. The promotion of markets without reference to their broader institutional context is likely to fail.

Market drivers evolve

Just as markets develop, the factors driving their emergence alter over time. While demand-side drivers are most closely associated with market creation to date (e.g. based on a growing appreciation of benefits, awareness of threats to supply or company public relations exercises), suppliers are becoming increasingly forthright in demanding payment, often supported by government environmental regulations.

Market development takes time and effort

A number of steps are involved in establishing payment mechanisms. Services need to be identified and clearly linked to forestry activities that ensure delivery, willingness to pay established, commodities defined and the trading infrastructure set up. Time is also needed for feedback and gradual improvement. The process can be long and may involve setbacks.

Market benefits are widely applauded, while costs are poorly recorded

Very few thorough assessments of the costs and benefits of emerging markets exist. For the most part, market descriptions are general, *ad hoc* and vague. Moreover, because literature tends to be written by proponents of markets, there is a heavy emphasis on benefits, and little critical analysis of costs.

Markets may or may not benefit the poor

The lack of critical analysis is particularly prevalent when it comes to impacts for the poor. There are a number of reasons for concern. Because the poor often lack property rights, they are likely to struggle not just for a share of business, but they will have to fight to retain control over, and access to, the resources on which they depend. The poor also lack the requisite skills and resources to participate in emerging markets. Transaction costs, which are already high, are even higher for poorer players. Ultimately, however, the poor lack power. Where poor groups have little voice there is a real risk that they are marginalised from market benefits. Yet risks that markets will further entrench existing inequities must be set against possibilities that markets will provide a catalyst for change. By helping poor groups transform natural capital embodied in forests into financial flows, markets provide local people with greater flexibility in exploiting their natural assets and help to reduce vulnerability by diversifying income base. Guidance on how to ensure markets enhance rather than detract from, poor

peoples' welfare is urgently needed.

As with any desk study, the review is restricted in what it can achieve by the availability and quality of written material. Nevertheless, by providing a comprehensive review of existing material on emerging markets, it provides a sound basis for drawing out preliminary insights and identifying gaps for more detailed investigation.

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1 Based on forthcoming review paper

Market systems for non-timber forest products in the Amazon

By Vag-Lan Borges

Since 1996, this research in the Amazon tropical rainforest of Brazil has focused on the analysis of the dynamics of the economy of forest products, particularly non-timber forest products (NTFPs), and its institutional arrangements. During the nineties, foreign aid was a dominant instrument in financing the livelihood of forest dwellers and forest management in the Amazon. However, in the same period the economic and social living conditions of forest people became worse and the depletion of forest resources continued. The conclusion of the research is that the institutionalisation and strengthening of markets and household economy for the trade in sustainable forest products represents a simpler, cheaper and more efficient way to promote human development, self-reliance, and biodiversity conservation in the Amazon. This institutionalisation should include the definition and enforcement of property rights, technological innovation, technical training, standardisation of processes and products, and better information diffusion to reduce market asymmetries and imperfections.

Economic importance of NTFPs

Although all theoretical approaches agree on the high ecological and economic values of forests and also on the necessity to plan and assure their multiple use, this tacit agreement is not the case for the strict economic issue of the NTFPs. On the one hand, neoclassical economists and their followers postulate that non-timber extraction is a primitive and transitory economic activity. According to them, it will give way to species domestication and large-scale cultivation or will be substituted by similar products, for the reason of its supply rigidity and increasing shortage in view of demand growth. On the other hand, Brazilian environmentalists recognise the economic importance of this kind of forest extraction, which involves about 16% of rural inhabitants of the Brazilian Amazon, and the low impact and non-exclusive character of this activity. They therefore defend a new type of governmental intervention through fiscal and credit subsidies that privilege this economic sector, thus contributing to the conservation of forest resources. This article presents a third approach for the analysis of this issue, by postulating that the ecologically important NTFPs are also economically viable. Therefore, the better way to finance trade in sustainable forest products is by implementing and using market mechanisms and instruments.

Competition by substitute products

On the basis of time series data of

production of several NTFPs of the Amazon and field-research evidence, one perceives that after the beginning of competition by a 'substitute product', the production of the NTFP does not finish completely. This means that a non-timber product cannot be entirely substituted. If substitute products respond to expectations of some demand segments, this does not hold true for others, thus evidencing the existence of diverse demand segments.

Within the context of markets, NTFPs have specific qualities that distinguish them from substitute products, whether cultivated, synthesised or industrially processed. Although supply rigidity of NTFPs implies the substitutability for some demand segments, other segments remain able to buy them, since these products respond to market expectations of quality, quantity, supply normality and price. The corresponding market segments are the "green markets" and the "organic markets". The "green markets" represent the group of consumers who will pay more for products that contribute to conservation and ecological sustainability, whereas the "organic markets" represent those consumers (both firms and individuals) who demand products from native source, with a high genetic variability, and produced without using toxic inputs. These two market segments are distinct niches that are willing to pay more for specific qualities of non-timber products, whether or not substitute products are available. These observations lead to the deduction that for these markets a non-timber product does not compete with substitutes. This also implies that if the production of a non-timber product initially falls when the competition of a substitute product starts, suppliers can search for specific niches.

Improving market mechanisms

Thus, within this economic environment, the improvement and perfecting of markets networks is the better and most important strategy to finance sustainable development and forest management including biodiversity conservation. This requires changes in four interrelated dimensions of forest economy:

- Improve the flow of information;
- Facilitate the spread of technology and rural credit;
- Co-ordinate the design of regulations; and Assure property rights, land concessions and tenure.

Poor access to information is an important bottleneck in the development of the trade in NTFPs. It constrains the capacity of extractors to obtain optimal prices for their products. Often, rural credit is expensive and technology does not develop at the necessary pace. While improving information flow, governmental initiatives to organise this sector need to promote the creation and implementation of new technologies to improve market acceptability. New regulations are also necessary to ensure that each NTFP attains acceptable standards of quality and that the management of the resource is sustainable. Finally, government must provide security in the area of property rights, concessions and tenure over natural resource allocations.

Conclusion

This theoretical framework has been used and implemented by programs and projects financed by the Brazilian government and ENGO in the Amazon, aimed at promoting rural development and sustainable forest management, based on trade in non-timber forest products. The framework may also be a true policy alternative to stimulate revival of an economic sector that meets objectives of income and wellbeing of extractive populations and international expectations to conserve biodiversity.

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Biocomercio: A path towards sustainable development

By Aurelio Ramos

Colombia is endowed with many of the richest ecosystems in the world. The country has a high overall species diversity as well as many endemic species. In biological richness, the country is surpassed only by Brazil, a nation seven times the size of Colombia. The geographical position and the variety of ecosystems, which include tropical rainforests, savannahs, wetlands, tropical islands, Andean forests and high mountain grasslands, contribute to the country's immense biological diversity.

Biodiversity loss
This abundance is being lost at a high rate. At a national scale, more than 400,000 ha are annually deforested. Water supplies are also being contaminated, erosion is threatening the agricultural productivity and forest conversion is the principal cause of the problem of biodiversity loss. The cultivation of illicit crops contributes in an important way to this negative process, which has become a problem in about 80% of the departments of Colombia. New economic alternatives need to be developed in these areas of conflict.

Biocomercio Sostenible at work
The objective of the programme Biocomercio Sostenible is to create and promote mechanisms that enhance the investment and trade of products and services derived from the country's biodiversity, according to ecological and social sustainability criteria. Biocomercio Sostenible ("Sustainable Biocommerce") works as a facilitating mechanism that gives commercial and market information; it provides technical assistance to entrepreneurs and companies; and supports companies to define adequate sustainability criteria for their production systems. Biocomercio is a programme of the Biological Research Institute "Alexander von Humboldt" and operates in co-ordination with the Colombian Ministries of the Environment and Foreign Trade and the BIOTRADE Initiative of UNCTAD. It is a mechanism that can be used in areas producing illicit drugs in order to help the coca growers to find new economic alternatives. The products and services on which Biocomercio currently focuses are agricultural products, wood products, non-timber forest products, and ecotourism.

Areas of Biocomercio
The programme is divided into six areas:

1. Biocomercio Information System
An information system has been designed particularly for entrepreneurs and other organisations interested in "bio-businesses." and is currently available online.

2. Entreprise development
This area facilitates the creation and conversion of firms that want their production process to meet ecological and social sustainability criteria. The area is divided into three sub-components of ecological, social, and economic principles and criteria. Special projects include

incentives to entrepreneurs and firms wishing to apply the sustainability criteria, such as the partial coverage of technical assistance costs, seed capital investment and soft loans. Five local offices have been created in support of this area.

3. Market research
The area of market research defines and focuses on products and services that are strategic for the development of the country. Much of the research is done in response to the specific needs of enterprises. The international market research is done in co-ordination with Proexport (the Trade Promotion Office of Colombia), CBI and the International Trade Center OMC/UNCTAD. National market research is developed with local universities and experts. Research also focuses on topics relevant to Biocomercio, such as intellectual property rights, certification, legislation, sustainability criteria, and available investment tools. The results are presented to the public through the information system.

4. Pilot projects
Pilot projects on topics relevant to Biocomercio are developed together with entrepreneurs.

5. Investment and financial tools
This area facilitates the access of entrepreneurs to traditional and new investment tools. It has the task of designing a fund and searching for investors in order to help entrepreneurs develop their business plans and obtain seed capital to start the company.

6. Networks
To this area belong different networks operating in Colombia, each involving more than 30 institutions. They specialised in a type of product or service such as non-timber forest products, certified wood, organic agriculture and ecotourism. Biocomercio works closely with these networks and tries to enhance their social and ecological impact.

Current projects
These projects are designed for different geographical areas or productive sectors. The following examples of current projects illustrate the Biocomercio approach**.**

Natural ingredients for the pharmaceutical and cosmetics sector
This is project is developed by CBI, Proexport and the Humboldt Institute. Its objective is to assist at least 30 Colombian enterprises in their trade promotion activities by giving them technical assistance in biological and social sustainability criteria, marketing and trading facilities, and economic incentives. Since the start in February 2001, six enterprises have been selected already and are participating in the process.

Enterprise development in the Colombian Amazon Region
This project developed by Biotrade-UNCTAD, 12 institutions of Bolsa Amazonia Colombia and the Humboldt Institute, aims to provide technical assistance to the private and communal enterprises in the Colombian Amazon. It started in January 2001 and 30 entrepreneurs have been selected for **a** capacity building course of three months starting in January 2002. The two best projects will be provided with seed capital, while Bolsa Amazonia Colombia will support the other projects.

Andes project
The Humboldt Institute and other national institutions are developing the Andes

project, with financial support from GEF, the government of The Netherlands, and several Colombian institutions. It is a six-year project that will help to expand the tools developed by Biocomercio in several locations of the Colombian Andean Region.

Biocomercio's national contest

Corporación Andina de Fomento (CAF) and the Humboldt Institute took the initiative to organise a national contest. Business plans are being developed by more than 100 entities. The aim is to give special soft loans to the best three Biocomercio projects. The winners will be identified in February 2002.

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National forest sector financing strategies – lessons learnt

By Jyrki Salmi

The IPF(Intergovernmental Panel on Forests)/IFF (Intergovernmental Forum on Forests) processes identified the National Forest Programs (nfps) as a major framework for channelling, prioritising and increasing financing to the forest sector with special reference to sustainable forest management (SFM). The International Forest Advisors Group recommended that the nfp exercises should include the preparation of a specific forest sector financing strategy. Such strategies or related studies have now been prepared in Vietnam, Malawi, Costa Rica, Tanzania and Guyana. The present article summarises the lessons learnt from these country-level exercises. The objective of the article is to disseminate these lessons, and to encourage the inclusion of specific financing strategy elements into ongoing and planned nfp processes in other countries.

National financing strategies

In the past, the planning of funding of national sectoral development programmes was essentially based on gap analysis. Comparing the quantitative estimates of resource needs with actual funding levels identified funding gaps. ODA was usually resorted to fill the gaps, with varying degrees of success. With the evolution of thinking on aid, the international policy dialogues on forest-related issues, and the work of different public and private organisations, this mechanistic approach has been questioned. It is progressively replaced by increased emphasis on the creation of frame conditions conducive to investment, based on the qualitative characterisation of the needs. The role of private investments, market-based instruments, resource ownership and policy reforms is increasingly recognised as entry point, often beyond the forest sector itself, which determines the financing of SFM.

These developments led to the emergence of the concept of financing strategy. Despite significant conceptual development, the financing issues remain politically sensitive, and the mobilisation of financing and the operationalisation of financing instruments technically complex. A national financing strategy is a tool for informed decision making in this regard. It should be linked with a nfp process, and needs to be country-specific and flexible. It identifies and coordinates interventions from global, regional, national and local levels. The goal of the financing strategy is to raise the necessary resources for the implementation of a nfp. The objectives are to mobilise new and additional resources, and to use existing sources and instruments more efficiently through the creation of enabling

conditions.

Lessons learnt

Country level experience on financing strategies available from Vietnam, Malawi, Costa Rica, Tanzania and Guyana confirm the importance of addressing financing issues at the same time as a national forest programme is being formulated. Declining public sector financing to forestry has been a general trend in all of these countries, mainly due to constant budget deficits and subsequent public sector retrenchment. Similarly, ODA has been declining. Although the information is very scarce, it is estimated that the private sector is presently the only growing source of financing for the forest sector. Consequently, the national level financing strategies are focusing on:

- increasing the public sector revenue that can be used for self-financing of public sector institutions and development of various types of retention schemes;
- improving the efficiency and effectiveness of ODA by introducing Sector Wide Approaches (SWAps), which focus on developing unified implementation mechanisms and financing delivery systems;
- improving business environment by removing barriers for profitable private sector investments in SFM, and thereby attracting new and additional domestic and foreign investments in the sector; and
- tapping new international mechanisms and instruments such as those linked with CDM, CBD, and green Foreign Direct Investment.

Vietnam

The main conclusion of the study in Vietnam was that the government forest financing strategy has focussed too heavily on subsidies. Instead, more attention should be given to removing barriers for investments in profitable sustainable forestry. Such barriers include: (i) unclear and weak tenure rights, (ii) restrictive and controlling enterprise and business development policies and legislation, (iii) high taxation on economic activities, (iv) administratively set timber prices that distort the markets, (v) poorly developed national financing sector, and (vi) non-competitive policies and legislation regarding the foreign direct investment and international portfolio investments. These issues are presently being developed further under the joint government-multi-donor Forest Sector Support Program, which can eventually lead to a Sector Wide Approach (SWAp).

Costa Rica

The Costa Rican case is characterised by various schemes and projects based on innovative instruments (also see Reyes et al., this issue). This has provided a "critical mass" of information, knowledge and expertise. Various important instruments and mechanisms developed include: (i) the now dissolved Forest Development Fund, (ii) National Fund for Financing Forestry (FONAFIFO), (iii) INBio support to biodiversity development through small enterprises, (iv) the IDB supported Central American Environmental Fund located in Costa Rica, (v) ecotaxes, and (vi) watershed conservation fees.

Malawi

In Malawi the key recommendations included: (i) introduction of performance-related revenue systems for forestry, (ii) partnerships in forestry, (iii) establishment of an autonomous forestry entity, (iv) introduction of forest funds, (v) improving the pricing and marketing of forest products, and (vi) introduction of forest product grading and certification.

Tanzania

In Tanzania the financing study found that the establishment of a retention scheme had been a major achievement. It enabled the gradual development of the sectoral self-financing. The study made detailed recommendations in the following areas: (i) expansion of revenue base, (ii) improvement of revenue collection, (iii) improvement of forest produce pricing system, (iv) promotion of stakeholder involvement in domestic private sector investments, (v) increasing foreign direct investment, and (vi) optimising the use of foreign assistance and increasing the ownership. Regarding the last point, the study proposed the introduction of SWAp, which is presently being discussed by the government and key donors.

Guyana

In Guyana, the liberalisation of the economy and the removal of trade barriers and obstacles have significantly improved the business environment. Similarly it was assessed that the Guyana Forestry Commission should be significantly strengthened. The narrow human resource base remains the major bottleneck. The private forest sector has been facing adjustment to open and more competitive business environment, which has been painful to many companies. On the other hand, the new situation provides opportunities for well managed companies. The study proposed further work on the following topics: (i) concession bidding and auctioning, (ii) performance bonds, (iii) certification of forests and chain-of-custody certification of products, (iv) micro-financing, (v) public/private partnerships, (vi) domestic-foreign joint ventures, (vii) clarifying existing property rights, and (viii) the establishment of a national forest fund.

Conclusion

In all the above cases, the preparation of a financing strategy or related study has contributed towards breaking with the tradition of relying on aid as the only solution for improving the sectoral financing. A wider selection of solutions is being introduced, including various national financing mechanisms and instruments. This is an important development, which may lead towards increasing self-financing. At the same time, the financing strategies are providing a basis for forest sector SWAps that are expected to increase also the impact of external assistance.

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Environmental shares in support of sustainable forest management in Colombia

By Carmenza Robledo A.

Sustainable forest management does not only imply sustained yield forestry and sustaining a wider array of forest functions, but furthermore a high degree of economic feasibility and social acceptance. With this challenge in mind, the Swiss Federal Laboratories for Materials Testing and Research (EMPA) and the forest group of the Worldwide Fund for Nature developed a project idea in 1998 with the aim to explore options for long-term financing of sustainable forest management in tropical regions (Robledo, 2000).

Environmental share-issuing company

As a result, the project proposes the creation of a Sustainable Management

Entity (SME) that operates as an environmental share-issuing company. Within its area of influence, the SME is responsible for the conservation of natural forests and for the sustainable management of degraded forests and forest plantations, as well as for improving the living conditions of the population. In order to address this goal the SME will implement an integrated financing method that combines three financing sources:

- Private investment in Environmental Shares;
- income derived from sustainable management of forest goods including timber and non-timber forest products; and
- payments for forest services, including carbon storage, watershed management and other forest services such as biodiversity conservation.

Environmental Shares

Environmental Shares are shares issued by the SME. A maximum of 49% of the shares are tradable at the international stock exchange. The remaining 51% of the shares represent the tenure rights and stay in the hands of the local landowners. The international business community and other interested parties can buy Environmental Shares. The acquisition of shares allows shareholders to obtain an "Environmental Acknowledgment" - issued by an internationally recognized organization - which can be used for advertising and promotional campaigns. At present it is advantageous for investors, especially from the industry community, to be committed to sustainable management of natural resources. The possibility of using an Environmental Acknowledgment in advertising is widely recognized as an excellent investment.

Currently, there are various approaches to monetarize forest services. A new opportunity is provided by the recognition of forest sinks by the UN Convention on Climate Change (also see Skutsch in this issue). Afforestation and reforestation have been recognized as accountable for projects under the Clean Development Mechanism (CDM). The project includes Certified Emission Reductions (CER) as a core element in financing a SME. Other possible payments for forest services, such as those for watershed management or biodiversity conservation can be considered depending on the specific conditions of a SME.

Pilot project in Colombia

In early 1999, four partners engaged in the formulation of a pilot project: the World Bank's forest team, the International Tropical Timber Organization (ITTO), EMPA and CORNARE, a Colombian institution in charge of sustainable development at the regional level. The initial project of 18 months titled "Alternative Financing Model for the Sustainable Development of the Area of San Nicolás" was financed through the ITTO project cycle in November 1999 (ITTO, 1999). The main objective of this project is to further develop the concept and to test the feasibility of the financing method at field level.

The project was implemented in an Andean mountain area in Central Colombia. The total project area comprises 72,000 ha, including 30,000 ha for conservation and 42,000 ha of multiple-use forest. The pilot project has three specific objectives: (i) to develop an investment and financing plan for the SME; (ii) to formulate a forest management plan with participation of the local community; and (iii) to ensure the basic social and institutional conditions

required for the implementation of the pilot project.

Current situation

The socio-economic conditions in the region are characterized by intensive land-use changes, deterioration of the living conditions of the local population and the existence of a violent conflict that has deeply affected civil society. These problems have also resulted in forest degradation and deforestation, as well as in a reduction of the hydrological potential in the region. In addition, a decline of prices has influenced wood processing and marketing of wood products in recent years.

A positive factor is the high degree of organization of the local community. Furthermore, a CORNARE (Corporacion Autonoma Regional del Reinegro-Nare) inventory indicated that there are important forest assets in the region, comprising areas with high potential for sustainable forestry and substantial water resources. With these assets in mind, SFM activities are planned, based on the participation of different sectors. The activities will include forest management (for conservation and multiple-use) and social development, for example through generation of local employment, and equitable distribution of benefits. In order to promote meaningful participation, a Regional Forum has been established. This Forum steers the creation of the SME and is composed of local stakeholder representatives, as well as national and international experts in charge of the technical aspects.

The pilot project relies on a number of technical, social and institutional conditions:

- The legislative resolution 016 of 1998, establishing forest conservation areas and multiple-use forestry areas;
- The opportunities offered by the Clean Development Mechanism considering afforestation and reforestation activities within the multiple-use forestry areas [1];
- The implementation of a participatory and integrative Regional Forum; and
- The reputation of CORNARE and its international partners in terms of technical capacity and impartiality.

Future development

The main output of the current project phase will be the business plan of the SME. This plan will include the results of a comprehensive forest inventory, a forest management plan, the definition of the baseline and the project scenario, a program in capacity building, a monitoring system (for both SFM and carbon forestry), as well as the identification of investments opportunities, costs and benefits. The project partners are optimistic about the implementation of the pilot project. A follow-up phase to further develop the investment plan is under consideration. The project welcomes new partners that are interested in the proposed innovative approach to put sustainable forest management into practice.

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1. Due to the fact that the role of avoiding deforestation for following commitment periods is not yet clear the potential emission reductions for conservation will be accounted separately in the pilot project

IV FINANCING CARBON SEQUESTRATION SERVICES

This section is dedicated to the potential for financing carbon sequestration services, and presents some experiences in this area. Margaret Skutsch reviews financing options for community forest management under the Kyoto Protocol and UNFCCC. Peter May of the Brazilian NGO Pró-Natura describes a practical carbon sink project based on community forest management in Mato Grosso. The social meaning of carbon sequestration activities and the institutional capacity building aspects of this green market, are illustrated by Miriam Miranda and co-authors, in the case of another carbon sink project in Costa Rica. In their article, Bruno Locatelli and Guillaume Lescuyer evaluate the potential for payment of carbon services in support of sustainable forest management in Cameroon, and relate this to outcomes of economic valuation. Finally, we refer to the article by Carmenza Robledo in Section III on environmental shares, aimed at financing carbon sequestration and other services

Access to finance for community forest management under the UNFCCC and Kyoto Protocol

By Margaret M. Skutsch

A previous article in ETFRN News reviewed the potential for funding for forestry under international climate agreements, particularly under the Kyoto Protocol (Skutsch, 2000). Since then, further negotiations have taken place and this article aims at giving an overview of the current situation.

Carbon mitigation projects

At the Conference of Parties in The Hague (COP6) in November 2000, the inclusion of sinks as a means of carbon mitigation was discussed. Despite initial opposition, this principle was accepted at COP6 part 2 in July 2001 in Bonn. On one hand, sinks have been accepted as a means of reaching CO_2 reduction targets in the North (with caps limiting this). In developing countries, afforestation and reforestation projects can also be included and financed under the Clean Development Mechanism (CDM). These activities, referred to as ARD projects (Article 3.3 in the Kyoto Protocol), can be used to offset up to one percent of the carbon emissions of an Annex I country [1] (UNDP, 2001).

Clearly, this provides scope for the financing of certain types of forestry projects in tropical regions. However, there are a lot of limitations. First of all, the modalities, rules and regulations as regards how a project can qualify for CDM status still have to be worked out, which will occur at COP9 in 2003. The peculiar situation has arisen that the decisions of COP7 in Marrakech in November 2001 give way for the immediate start of CDM projects,

provided that these will meet the technical requirements to be decided upon in 2003.

Secondly, it is important how the terms 'afforestation' and 'reforestation', are interpreted. Article 3.3 is restricted to plantations and similar types of projects that involve a clear land use change, such as from non-forest use to forest, or from deforested areas back to forest. These definitions obviously leave room for multiple interpretations, which leads to continuous discussion [2] (IPCC, 2001).
Projects involving improved management of existing forest are at present not eligible for CDM status, as they are categorized as 'additional activities' (Article 3.4 in the Kyoto Protocol). This means that for example Joint Forest Management, and community forest management or cooperative forest management projects, where the objective is usually sustainable forest management of existing but degraded or degrading forest, cannot be funded as CDMs, at least during the first accounting period (2008-2012). This is unfortunate as such projects often have direct benefits to the local population, and therefore contribute more to local development than plantation schemes that tend to involve mono-cultures of fast growing species. In some cases, plantation projects have led to total exclusion of local people from the forest area, to safeguard the carbon stock. Even though more participatory and environmentally sensitive approaches are of course possible in such plantation projects, it is unlikely that these will be used: obviously the primary investment criterion for most Annex I countries, who are providing the funding, will be least cost carbon sequestration. Most ARD types of projects will probably not measure up to the kind of standards for sustainable forest management under CDM as proposed by CIFOR (2000).

Thirdly, there is the question of the practical availability of funds for CDM. The development of the market for CDM is still hard to predict, in particular now that the USA departed from the Kyoto agreement.

Bio-energy generation
An alternative route for CDM financing might be to manage forests for bio-energy in order to replace fossil fuel consumption. A simple example is provided by dendro-thermal electricity production. Projects based on existing forest could perhaps qualify not as sinks per se but rather as a form of alternative fuel supply, although the rules for this kind of mechanism are far from being agreed yet. A more complicated case could be argued by developing countries that sustainable management of forest for the production of fuelwood and other benefits could in itself represent a powerful means of carbon mitigation. At least 2 billion people use firewood or charcoal as their primary cooking fuels. Provided it is produced in a sustainable manner, the main energy use of these people can be carbon neutral. If forests are depleted, this will lead not only to the release of additional carbon into the atmosphere, but inevitably also to a long-term shift to fossil fuel consumption which is inherently unsustainable. There is an urgent need for research aimed at developing the approach of forest management for bio-energy generation and to bring test cases to the UNCCC. Even if pilot projects are not accepted in the current accounting period, they can pave the way for inclusion in the second.

Adaptation funds
Because of the initial belief that CDM would be a big money spinner, many foresters placed their hopes for major support to forestry in that line. In the long run however, the 'adverse effects' and 'adaptation' articles of the climate treaties provide better opportunities as far as forestry is concerned. These articles are

intended to support projects or programs that counteract the adverse effects of climate change, particularly aiming at the more vulnerable countries.

An Adaptation Fund to be paid for by a percentage levy on all CDM projects had already been agreed at Kyoto and was recently set at 2% of the value of the carbon savings in CDM projects. At COP6 part 2, two new funds have been set up under UNFCCC: a Special Climate Change Fund, and a fund for Least Developed Countries (mostly in Africa). These are complementary to existing GEF funds and represent new money, that is to say money not already included in ODA budgets. The EU, Switzerland and Canada have pledged themselves to donate from 2005 onwards US$ 420 million per year to these funds, of which US$ 10 million is specifically to start up the Least Developed Countries Fund. However, contributions to these funds are made entirely on a voluntary basis.

The rules for qualification of projects as adaptation projects are even less defined than the rules for forestry under CDM but are likely to be much less stringent, as there will be no problems of leakage or lacking baselines, which have bothered the negotiations on sinks. Clearly all kinds of forest management activities could be justified in terms of adaptation to climate change, since forests can deliver such services as watershed protection and the regulation of hydrological cycles, diversification of local economies, etc. Projects that are primarily designed for adaptation are expected to fit better into the development policies of countries in the South and will probably get better accepted than CDMs, which are more demand-driven. Besides money for adaptation, the funds also cover technology transfer and assistance to various sectors. Although the funds on offer at this point in time are limited, the potential of adaptation projects certainly is worth exploring. Test cases need to be developed and submitted so that the boundaries of the possible become clear.

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1 Annex 1 (to the UNFCCC) is a list of all countries which have accepted carbon emission quotas, which include the OECD countries and Economies in Transition, Annex 11 countries are essentially the wealthier of this group including the EU countries, Switzerland, USA, Canada, Australia, New Zealand, Japan etc. The non-annex 1 countries are the developing countries that do not have emission quota (yet).

2 The IPCC's perferred definitions are - afforestation -"planting of new forests on land which, historically, have not contained forests" and - reforestation - "planting of forests on lands which have, historically,previously contained forests but which have been converted to some other use". What percentage of tree cover is recognised as "forest" is a thorny problem still.

CDM and sustainable land reform in the Brazilian Amazon

By Peter H. May

As a response to the landless peoples' movement that has aroused worldwide sympathy, thousands of families have received forest lots in the Brazilian Amazon

over the past decade. But many of these projects constitute little more than land distribution. Settlers are rapidly cutting their lots into the wilderness, often many hours from the nearest road, school or health post. After exposing poor soils to intense seasonal rains, and lacking markets for their crops, many soon fail and move onward into the receding tropical rainforest, cutting and burning as they go. This process provokes CO_2 emissions, contributing to global warming.

As part of the Kyoto Protocol, the Clean Development Mechanism (CDM) provides that appropriate land uses and particularly reforestation and afforestation may enable temporary storage of terrestrial carbon, helping global society buy time to reduce fossil fuel combustion. Avoiding the polemic that surrounds this issue, a project underway in northwest Mato Grosso, Brazil, seeks to demonstrate that Amazon colonists can both store carbon and achieve stable and sustainable settlement. Rather than being part of the problem, they can become part of the solution to global warming.

Colonization processes in Mato Grosso

Today, nearly 100,000 people live in northwest Mato Grosso, an area of 108,000 km^2, which is approximately the size of Panama. Until the late 1970s, only native Indians and rubber tappers occupied this region. The migrants were enticed to the region by colonization companies that offered cheap land and promised access to agricultural markets. But government road-building and technical assistance did not materialize. Most settlers soon converted their coffee plantations to pastures, and many abandoned their lots to look for work in a burgeoning but often destructive timber industry. Due to its similarity to other colonization areas along the Amazon rim the region was selected for project implementation by Pro-Natura, a non-profit global environmental organization founded in 1986 in Brazil. Since 1992, Pro-Natura has been engaged in this region in sustainable agroforestry demonstration and institutional strengthening, in support of local producer associations and municipal governments.

Innovations towards sustainable development

In late 1998, the French auto manufacturer Peugeot-Citroën announced its decision to invest about $10 million in a major commercial carbon sink in northwest Mato Grosso. Peugeot and its technical partner, the Office National des Fôrets (ONF), a French government institution responsible for managing public forests, chose this region at Pro-Natura's suggestion. The carbon sink is planned to cover 5,000 ha of degraded pastures and involves testing of large-scale reforestation with species native to this part of the Amazon, never before tried at this scale.

The carbon sink project complements Pro-Natura's continuous efforts to introduce sustainable agroforestry and forest management systems throughout the region. This complementarity was recognized by the Global Environment Facility (GEF) in its support to a seven-year program of partnerships led by Pro-Natura. The program is focused on bioregional planning and local capacity building for sustainable use of biodiversity, and totals over $6.5 million.

Stimuli toward local sustainability

Pro-Natura observed a number of important stimuli toward local sustainability that can be traced to the advent of carbon sequestration initiatives in this region:

- Transformation in the local land market: land values suddenly shifted and the real estate market became more flexible and competitive, as

landowners began to respond not only to a local demand for beef and timber but also to global demand for environmental services;
- Creation of a market for native forest seed: small farmers and indigenous peoples found they could earn a complementary source of income by supplying quality seed to environmental reforestation projects – Pro-Naturafrtified this by training them as certified seed gatherers; and
- Expanded opportunities for local employment, e.g. in local nursery capacity, land preparation services, and reforestation consulting firms, and skill training in reforestation of degraded lands, including on-the-job training for field laborers in seedling preparation, planting, management, weed control, and fire prevention.

Not only did these stimuli promote efforts to restore degraded sites, but also led to an increase in the perceived value of the standing forest. Smallholders responded enthusiastically to donations of fast growing native seedlings from the project, and opted to establish their own agroforestry plantations, rather than engage in further deforestation.

Local income generation

Pro-Natura is now seeking ways to benefit its primary stakeholders directly by disseminating reforestation techniques for carbon sequestration and local income. Recent land reform beneficiaries in the GEF project region now number on the order of 10,000 households on over 250,000 hectares. Although some of these settlements were carved out of the tropical forest, others occupied large ranches that were expropriated or sold to the government land reform agency, and composed large areas of degraded pastures in various stages of succession.

Pro-Natura is hence working with associations of agrarian settlers to recover degraded sites within their common lands, with the objective of establishing permanent agroforestry and timber resources for local income generation. Responsibility for the conceptual basis and financial structuring for this effort lies with Eco-Carbone, an international services firm specialized in innovative landscape management for carbon capture and biomass energy throughout the developing world.

Carbon credits and other benefits

In today's risky carbon market, the project does not yet envisage sharing of eventual carbon credits as a means to convince farmers to participate. Instead, all tangible products of investment would accrue to a participating landowner /settlement association, while any ensuing carbon credits would be placed at the disposition of the external investor. These arrangements could change in future as carbon credits achieve greater credibility in the market. Costs of land preparation and seedlings are borne by the investor, but the landowner participates in the land preparation operations as well as in the maintenance and protection of the planted resources. Pro-Natura and the sister NGO Friends of the Earth-Amazonia are training settlers in forest fire prevention and combat, through municipal "protocols against fire". Carbon measurement, verification and certification are the domain of Eco-Carbone and its financial partners.

The project envisages that these replanted forests will achieve permanence in an emerging landscape mosaic of agroforestry, managed forests and intact biodiversity, providing clear benefits for local sustainability and the global climate.

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The social meaning of carbon markets Institutional capacity building for a green market in Costa Rica

By Miriam Miranda[1], *Carel Dieperink*[2], *Pieter Glasbergen*[2]

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This article introduces the thesis that carbon markets must be turned into 'green markets' in order to constitute a tool for local sustainable development. A successful green market is analysed: the implementation of the bilateral treaty between Norway and Costa Rica signed in 1997. This treaty combines the social ethic of NGOs and the commercial approach of business in a new kind of pragmatic consensus. Besides a review of secondary information, several interviews with main stakeholders and experts from different sectors were conducted in order to collect empirical data. The research is part of an ongoing PhD project entitled "Developing green markets: Institutional capacity building for carbon markets".

During the second part of the last decade, an international debate on advantages and disadvantages of Activities Implemented Jointly (AJI) and the Clean Development Mechanism (CDM) developed. These mechanisms were introduced aiming at the reduction of greenhouse gas emissions linked with objectives of sustainable development, and created a potential for carbon markets. Ethical, moral, economical and environmental arguments are broadly acknowledged. While some researchers regard AJI and CDM as win-win situations (Pearce, 1999; Richards, 1999), others strongly criticised them (Dutschke & Michaelowa, 1997; WRM, 2000).

Pioneer carbon market agreement

In 1997, Costa Rica signed a pioneer carbon market agreement with Norway. The Reforestation Conservation Activities Implemented Jointly Project (RFCAIJP) represents one of the first transactions on the emerging carbon market, between governments of a developing and a developed country (OCIC, 1996). It can be regarded a clear example of a green market (Rodriguez, 2001). The main goals of the agreement are to rehabilitate the degraded watershed of the Virilla River and to improve the efficiency of the hydro-energy power plant located at the Virilla River, through interactive involvement of stakeholders.

Implementation

The progress made to date is promising. After 4 years, 2500 hectares of forest area have already obtained a protection status, 83% of the final goal of 3000 ha to be reached in 2007. By the end of the year 2000, more than 783,000 trees of native species were planted on an area of 494 hectares. This is 49% of the number of hectares that should be planted in 2007.

The Costa Rican-Norwegian case illustrates that a carbon market can have a broader social meaning for a developing country, resulting in more benefits than carbon sequestration alone. Different stakeholder groups in this case benefit from the introduction of the carbon market.

New sources of income

Farmers benefit due to the extra and guaranteed income. Over a five year period they receive 45 US$/ha per year for conservation activities and 577 US$/ha per year for reforestation. They also received training to start a new economic activity and became familiar with measures to rehabilitate watersheds, to reduce water pollution and to plant and manage trees. So far, 27 farmers have signed contracts to start reforestation activities and 30 farmers concerning protection activities.

Multiple income streams from forests also developed for people outside the Virilla watershed. This is a common tendency in Costa Rica: economic activities such as eco-tourism, extraction of minor or non-wood products as fruits, plants, and flowers have brought new sources of income for thousands of Costa Rican families, thereby improving their quality of life.

Capacity building

As part of the implementation of the agreement, local communities participated in training activities. Five communities in general as well as 14 elementary schools, 54 teachers and 350 children have actively been involved in environmental education. Several training seminars on integral management of solid waste, recycling, production of organic fertiliser and lectures on watershed improvement were organised (PLAMA-Virilla, 2000).

Hydropower generation

Another important stakeholder that benefits from the introduction of the carbon market is the local electricity company. Thanks to foreign funding the electricity company could improve its efficiency and intensify its activities to improve the watershed. Trees were planted, thereby reducing erosion and improving water quality. As a result the company not only acquired a green image but was also able to produce far more hydropower. Since October 1999, the main Brasil plant produces 28 MW, about 27 times more energy than before. In the near future, six plants downstream-located might also enlarge their capacities. Now, the electricity company is an example for other private companies with similar ambitions, not only in Costa Rica but also in the Central American region.

Green market

The creation of a carbon market itself goes beyond the economics of exchanges of commodities. It includes a new kind of social organisation, regulated by more or less well-defined social rules, embedded within a larger social context. The construction of the market will depend on this context and also on its effects. In addition to carbon credits for one party and funds for the other party, performance consequences include new opportunities for investment. Through a carbon market a developing country might be able to both preserve its natural environment and, just by preserving it, to make this environment productive. This productivity should not be understood in economic terms only, but related to social and other environmental aspects as well. From our point of view, what initially might be labelled, as a carbon market might better be understood as a more encompassing 'green market.'

Therefore, the traditional economic view on the construction of carbon markets is a too simplistic one, particularly because it neglects the social meaning of a carbon market for developing countries. From their viewpoint as suppliers of carbon credits such a market has a broader meaning. It must be seen as a social mechanism for improving both the living conditions of local people and a more encompassing improvement of the environment than climate as such.

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Carbon sequestration by tropical forest: Materialising an intangible benefit ?

By Bruno Locatelli & Guillaume Lescuyer

Over the past decade, the economic value of tropical forest has been much debated at the international level. On one hand, discussions focused on the concepts underlying the assessment of the value of this globally important ecosystem and on the valuation techniques to be used (e.g. contingent valuation, travel cost method). On the other hand, the application of these theoretical notions and tools to tropical forests gave rise to much controversy.

Valuation study in Cameroon

This discussion is resumed with a particular case study in the east province of Cameroon, where a cost-benefit analysis was conducted to design the optimal forest management scenario (Lescuyer, 2000). This semi-deciduous forest presents common features for Central Africa as it is claimed both by local populations for the purpose of "traditional" resource extraction activities and by a logging company to exploit timber resources. The applicability of the monetary valuation techniques in this context was evaluated through the calculation and estimation of direct use values of the forest (timber, traditional medicines and food products) and of indirect use and non-use values. The result indicates the advantage of a conservation scenario of the forest over a timber production scenario. This outcome can mainly be attributed to the high economic value of the benefits of carbon sequestration (net present value of 7.5 US$/ha) in comparison to the net present value of timber benefits of about 5 US$/ha, the other values being minor.

Limitations of monetary valuation

On the basis of this experience, two criticisms are developed. First, the application of monetary valuation techniques to societies with minor market relations requires making arbitrary and eventually misleading assumptions. For instance, beyond the technical difficulties associated with valuation of environmental assets, it appears that money is not an adequate indicator to reveal individual preferences in this context. Human behaviour regarding forest management can hardly be interpreted in terms of monetary mechanisms, as market relations are almost non-existent among villagers. Second, the estimated economic values are of little use in the decision-making process, as local stakeholders neglect them in comparison to real financial incomes

generated by forest use. An example is provided by the ecological function of carbon sequestration: according to the monetary valuation, this service appeared to represent the highest economic benefit. However, benefits from carbon sequestration are hardly considered when designing forest management plans.

Implications of recent CDM developments

The "Clean Development Mechanism" (CDM) as defined and promoted in the Framework Convention on Climate Change and the "Kyoto Protocol" provides a new possibility to translate the economic value of carbon sequestration into real financial benefit. Before the resumed session of the sixth Conference of Parties in Bonn (COP6 bis), CDM was expected to become a substantial source of additional revenues for sustainable tropical forest management. As a matter of fact, during the pilot phase of "activities implemented jointly", many conservation and management projects in relation to tropical forest were funded, aiming at sequestering carbon and testing the implementation of CDM. The review of such projects indicates a wide spectrum of assessed carbon sequestration costs, as they depend on the types of forest ecosystem, on the proposed activities (conservation, restoration or management) and on the methods used (Dixon et al., 1991; IPCC, 2000). Moreover, the concrete prices per ton of sequestered carbon are far below any theoretical assessment of its economic value estimated at 10-50 US$ (Lescuyer & Locatelli, 1999; Tol et al., 2000).

The Bonn conference halted the trend toward an extended CDM in relation to tropical forests (also see Skutsch in this issue). It was rather decided that CDM is limited to afforestation and reforestation projects, at least during the first commitment period (2008-2012). Thus, unexpectedly, this mechanism will not constitute an important contribution to financing sustainable forest management. Nevertheless, other funds such as GEF and the adaptation funds decided at the Bonn conference would deal with forestry projects where carbon sequestration is not the main objective but may be indirectly associated to biodiversity protection or local development. In this context, the role of economic valuation in tropical forestry will probably be limited, as these financing mechanisms are not explicitly aimed at capturing the intangible benefit derived from carbon sequestration.

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V FINANCING BIODIVERSITY CONSERVATION

This section contains two articles that focus on financing mechanisms aimed primarily at biodiversity conservation in the South. The global community's willingness to pay for this global environmental service is the basis for new financing mechanisms developed by international nature conservation organisations. Markets for biodiversity are thus being created. In different ways, the needs and interests of local communities are taken into account, and linked with objectives of nature conservation. Further information on market mechanisms can be found in Section III, and on sustainable livelihoods and poverty alleviation in Section VII of this issue. In his article, Richard Rice describes how Conservation International has developed and is actually implementing the mechanism of conservation concessions. National governments and/or local communities are being paid as a compensation to forego commercial resource exploitation. Esther Blom and co-authors present two other mechanisms developed by the Netherlands Committee for IUCN: the creation of a Trust Fund for conservation and sustainable management of the Guiana Shield ecoregion, and 'Purchase of Nature', a small grants programme supporting local NGOs in purchasing threatened nature areas of critical importance.

Conservation concessions - concept description

By Richard Rice

Conservation can present a challenge to nations wishing to develop their natural resources for economic ends. Resource development activities offer the prospect of tangible economic benefits, but are often environmentally destructive. Although sustainable resource management seeks to provide these benefits while conserving natural ecosystems, experience suggests that a number of obstacles limit both the adoption of sustainable practices and their usefulness in conservation strategies.

To address this problem, the Center for Applied Biodiversity Science at Conservation International (CI) has been working in collaboration with Hardner & Gullison Associates, LLC, to develop the concept of a "conservation concession", a novel approach that seeks to directly reconcile resource protection with development.

Principles

Conservation concessions hold the potential to protect a wide variety of critical terrestrial and marine habitats, ranging from vast tracts of Amazonian rain forest to sensitive fisheries and coral reefs in the South Pacific.

Under a conservation concession agreement, governments or local resource users agree to protect natural ecosystems in exchange for a steady stream of structured compensation. The opportunity costs of foregoing natural resource

exploitation, including lost employment and government revenue from taxes, may serve as a basis for determining the amount of the payment. Payments may also reflect other costs, for instance government administration and enforcement burdens required as a part of concession operations. The benefits that are preserved by maintaining resources intact, such as traditional uses or watershed protection as well as the low-risk nature of the conservation payments should also be considered.

In its simplest form, a conservation concession might be modelled after a timber concession, whereby a logging company pays the government for the right to extract timber from public forestlands. Rather than log the concession area, the conservation investor would pay the government for the right to preserve the forest intact. The conservation concession thus presents an alternative opportunity for countries to capitalise on vast tracks of forest or other areas of high conservation value. With ultimate objectives that include both the long-term protection of biodiversity and the stimulation of economic development, this new mechanism offers a land use alternative that conservationists, development agencies, governments, and local communities alike can support.

First agreements

CI's efforts to establish conservation concessions have met with groundbreaking success in a number of countries. In September 2000, CI obtained an "exploratory permit" from the Government of Guyana to establish a conservation concession that will protect approximately 80,000 hectares of pristine forest. In April 2001, the Indonesian Minister of Forestry issued a public declaration in support of conservation concessions. In Peru, the government recently approved new regulations for its Forest and Wildlife Law that for the first time enable conservation bidders to compete for the land-use rights of its 67.6 million-hectare forest estate. In late July 2001, the country's first conservation concession under this law was granted to ACCA, a Peruvian NGO.

Components of a conservation concession agreement

A conservation concession requires a negotiated agreement between an investor and a government or other resource owner. Negotiated elements of the agreement might include:

- The amount of payments intended to compensate for setting an area aside or foregoing specific uses;
- Duration of the concession agreement;
- The investment portfolio where these payments will be directed; and
- Norms and guidelines for monitoring and enforcing natural resource protection.

Benefits and limitations of the conservation concession approach

Conservation concessions are one of many possible conservation interventions and are more appropriate in some situations than others. Conservation concessions may not be appropriate, for example, where guaranteed permanence is of pre-eminent importance or payments are impractical for political or institutional reasons. It is therefore important to view conservation concessions as a complement rather than as a replacement to national parks and other traditional protected areas.

Nevertheless, the use of conservation concessions for resource protection offers a number of distinct benefits.

Stable source of funds for economic development: Many economic activities, including conventional natural resource extraction yield revenue flows that are subject to unpredictable fluctuations. Alternatively, a conservation concession

offers regular, low risk payments of a known amount, denominated in a stable foreign currency, for as long as the terms of the agreement are met.

Direct, transparent conservation investments: A conservation concession yields immediate, transparent conservation that can be easily identified on a map and monitored based on readily verifiable norms. Although international willingness to pay for conservation is substantial and increasing, there is a growing trend emphasising outcome-based rather than process-based indicators of effectiveness of conservation funds. The methodology and concrete geographic basis of conservation concessions respond to this trend.

A market mechanism for conservation: Under a conservation concession, conservation becomes a product that can be purchased directly and provided according to clearly established criteria. In combination with payments, the limited term of a conservation concession makes it an attractive option for resource owners. At the same time, permanent protection is possible because of renewable terms, low opportunity cost, and high willingness and ability to pay.

Next steps

The conservation concession approach creates a new market for biodiversity, a market that is now in its infancy. Several parallel efforts are needed to move this market forward. First, the search for concession opportunities must deliberately target a diversity of ecosystems and geographic locations, and demonstrate the wide range of possibilities for this biodiversity conservation mechanism. For example, CI is examining the potential for a conservation concession in Namibia's biologically diverse arid coastal region, as well as marine concessions in Southeast Asia. Second, exploring a variety of partnership arrangements with governments, development agencies, NGOs, indigenous groups, and private corporations will expand the number of market participants and draw on the strengths of various actors in conservation and development. Third, on the supply side, market development will require the creation of appropriate institutional, legislative, and regulatory infrastructure in host countries, such as the legal instruments CI has promoted in Peru and Guyana. Finally, initiatives to leverage new sources of funding could catalyse the demand side of this budding market for biodiversity, for example by targeting private sector companies seeking environmental offsets.

This comprehensive set of efforts, which combines research and development with direct implementation of the conservation concession approach, is expected to expand the horizons of the market, clarify the potential roles of different participants, and set in motion this novel market for biodiversity conservation.

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Financing mechanism for conservation in the Guiana Shield and purchase of nature: experiences of NC-IUCN

by Esther Blom, Dave Zwaan and Willem Ferwerda

The Netherlands Committee for IUCN (NC-IUCN) manages several programmes for conservation and sustainable use of nature. Innovative financing mechanisms play an

important role in two specific programmes: the Small grants for the Purchase of Nature and the Guiana Shield Initiative. After a brief introduction, these programmes are further elaborated to illustrate the specific financing mechanisms concerned.

Small grants programmes of NC-IUCN

International Union for the Conservation of Nature (IUCN) is the world's largest nature conservation organisation, bringing together both state members and NGOs. Since 1948, it has promoted nature conservation in a just world. The Netherlands Committee for IUCN is a co-operative agreement between the Dutch members of IUCN and those of six international IUCN commissions. Members support and interact with each other in pursuit of IUCN's mission. One of the core activities of NC-IUCN is (co-)financing of local nature conservation projects in the framework of small grants programmes, based on the ecosystem approach of the Convention on Biological Diversity. Currently, four small grant programmes are operational:

- the Tropical Rainforest Programme that supported over 600 projects in the field of conservation and sustainable use of tropical rain forests worldwide, from 1994 to date. The annual budget is about €2.2 million, with a maximum amount per project of €75.000;
- the Small Grants for Wetlands Programme that supports projects on conservation and wise use of wetlands and was created in 2000. The annual budget in the pilot phase is about €1 million with a maximum of €75.000 per project;
- the Benin Programme that supports biodiversity conservation projects in Benin (created in 2000, annual budget €180.000); and
- the Small Grants for the Purchase of Nature, which has recently started and contributes to conservation of biodiversity by supporting the purchase of threatened nature areas.

Small grants for the Purchase of Nature

The programme Small grants for the Purchase of Nature provides financial support to local NGOs for strategic purchase of nature areas in tropical countries, Eastern Europe and the Commonwealth of Independent States (CIS). The National Postcode Lottery is funding the programme with an amount of €453.800 per year. In principle, nature areas should not be for sale according to the viewpoint of NC-IUCN, for these areas belong to everyone. In practice however, purchase appears to be a strong instrument in saving highly threatened nature areas from destruction.

Since the overall magnitude of the fund and the money granted per project (maximum €75.000) are limited, the purchases need to have a strategic significance for the conservation of local biodiversity. An example of a strategic choice is the acquisition of an area that links up two nature reserves, thereby increasing the conservation value. Purchases with a political, policy or urgent character are also possible. Most NGOs applying are experienced in nature conservation and seek support to – now or never – buy a piece of land in order to prevent conversion into other land uses such as agriculture, plantations and infrastructure. Obviously, a strict condition of the programme is that the legal system of the country involved should allow purchase of nature by NGOs. To date, three projects have been assigned a grant: in Poland, Costa Rica and Ecuador.

The Guiana Shield Initiative

An entirely different initiative aimed at financing nature conservation is the Guiana Shield Initiative (GSI). The Guiana Shield covers the countries of Suriname, Guyana, French Guyana and parts of Colombia,

Venezuela and Brazil. The Shield is one of the oldest geological formations in the world, containing unique flora and fauna.

The countries of the Shield share common problems and threats such as mining, timber cutting and infrastructural development. Another reason to address the Guiana Shield as an ecoregion is the transboundary nature of indigenous peoples' territories and of major river systems. The GSI aims to develop an innovative financing mechanism for the conservation and sustainable management of the Guiana Shield ecoregion. One of the main premises of the GSI is that the international community should compensate the countries of the Guiana Shield for providing ecological services to the world. These 'public good' services, such as the mitigation of the effects of climate change, the conservation of biodiversity and the regulation of hydrological cycles, can only be provided by keeping the vast forests of the Guiana Shield intact. Alongside and in conjunction with the public good services is the development of private sector activities. The GSI intends to promote the development of sustainable business activities, such as sustainable ecotourism, the production of non-timber forest products for local and regional markets, and possibly sustainable timber extraction.

The structure of the financing mechanism is in its earliest stages, as input is needed from the region and from the international donor community. The general concept is that the ecological goods and services would be delivered by local ecosystem managers, such as local communities, forest managers, park authorities, (semi-) government institutions and environmentally responsible businesses. In doing so they would be eligible for income generating payments and financial incentives provided by the regional financing mechanism. At present, the interpretation of the concept of the financing mechanism is still somewhat general and it can still develop in many directions. Until now, the basic idea is to develop a Trust Fund in which private companies as well as donors can participate.

The first phase of the GSI is currently underway with funding from the Dutch Ministry of Foreign Affairs (DGIS). The central activity of Phase I is to prepare a proposal for a more extensive programme to be submitted to the Global Environment Facility (GEF). Other Phase I activities relate to the compilation of baseline information necessary to set up sustainable management and conservation activities under a regional financing mechanism. These activities include: organising a regional conservation priority-setting workshop (in partnership with Conservation International and the UNDP); examining the possibilities for generating income under the Kyoto Protocol of the Climate Change Convention and establishing the regional carbon baseline; assessing the current situation and potential for developing NTFP, timber and ecotourism projects; and assessing the feasibility for ecosystem monitoring.

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VI FINANCING MAINTENANCE OF HYDROLOGICAL SERVICES

This section provides examples of payment mechanisms in relation to hydrological services. The article of Virginia Reyes and

co-authors starts with a brief introduction on the Costa Rican government programme for Payment of Environmental Services, and then focuses on the mechanism of voluntary agreements with hydro-electric power companies. Economic valuation is used to assist in the assessment of the amount of payment forest owners should receive for the maintenance of hydrological services. In The Philippines, hydro-electric power companies are also promoting reforestation activities of local communities, which is described by Danilo Mero. In Ecuador, the maintenance of the quality of drinking water is pursued by municipal water companies. In their article, Robert Hofstede and Montserrat Albán describe the mechanisms of water taxes and water funds for three Ecuadorian municipalities. Furthermore, we refer to the articles of Rob Hope and co-authors and of Diwakar Sinha (Section VII), in which maintenance of hydrological services also plays an important role.

Valuation of hydrological services provided by forests in Costa Rica

By Virginia Reyes[1], *Olman Segura*[1] *& Pita Verweij*[2]

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In 1996 Costa Rica created Forest Law 7575 in order to accomplish new strategies to support the development of the forestry sector. This forest law evolved from a period of three decades of forest policies and introduced the concept of paying owners of forested property, or property in the process of reforestation, to compensate for the environmental services provided by their activities to society in general. The acknowledged environmental services include regulation of hydrological cycles, scenic beauty, carbon sequestration, and biodiversity conservation.

Payment for Environmental Services

The implementation through a program of Payment for Environmental Services (PES) comprises two types of mechanisms. Firstly, it includes monetary compensation by Costa Rican society to private landowners either for maintenance of primary forest, establishment of forestry plantations, or forest management. Secondly, different types of voluntary agreement with hydropower companies were established and they are in the process for a brewery company, several hotels and tourism agencies.

From 1997 to end of 2000, the PES program included 251,226 hectares belonging to private landowners (4.9% of Costa Rican territory). Of these, 212,333 ha correspond to forest protection, 15,202 ha to forestry plantations and 23,691 ha to forest management. The forest owners receive payment from the National Forestry Finance Fund FONAFIFO that works with funds provided by the national government. Of the taxes collected from fossil fuels, 3.5% goes to FONAFIFO, which permits the compensation to private landowners. In addition, the existing voluntary agreements also provide financial resources, resulting in the payment of 17,611 ha.

Research in support of PES

FONAFIFO needs a solid basis for negotiation of voluntary agreements. Both the Forestry Law (1996) and Biodiversity Law (1998) define the criteria for payment of environmental services but do not define the type of financial instrument nor the monetary amount that should be paid. FONAFIFO should establish these

mechanisms on the basis of scientific studies, of which the following is an example. The research project on "Parameters for the economic valuation of the hydrological services provided by forest and forestry plantations in Costa Rica" is currently developed by CINPE. This study reviews the Costa Rican experience in the establishment of PES agreements for hydrological services and develops economic valuation tools in order to create or renegotiate settlements with private or governmental organisations.

Voluntary agreements

Voluntary agreements can be classified into two categories. On one hand, there are private agreements established between an NGO and a private company. An example is the agreement since 1998 between the hydropower company La Esperanza and the conservation organisation Asociación Conservacionista Monteverde, where the company pays 10 US$/ha per year to the NGO for hydrological services of forests in the Peñas Blancas watershed. On the other hand, FONAFIFO established agreements with private companies. The following are three examples this kind of settlements.

- Energía Global has two hydropower plants in the Volcán and San Fernando watersheds and pays 10 US$/ha per year during five years since 1997.
- The Empresa Eléctrica Platanar located in San Carlos has recognised an expenditure of 15 US$/ha per year during five years. In addition, this company signed an extension in 2000 that includes payment of 30 US$/ha per year to landowners, including those without official land titles, for a period of 10 years. The Compañía Nacional de Fuerza y Luz signed an agreement in 2000, where 47 US$/ha per year is compensated to landowners with or without land title during 10 years in three watersheds.

Fee on drinking water

Another interesting case is the hydrological fee established in the year 2000 by the drinking water Company of Heredia in three minor watersheds in the Central Valley of Costa Rica. There is no institutional agreement with FONAFIFO or the Ministry of Environment. The company collects 0.0057 US$/$m^3$ for consumed water, to be reinvested in forest conservation and reforestation within the same region.

Economic valuation

The valuation study focuses on hydropower and domestic consumption, and aims to estimate the value of the hydrological services provided by forests in four watersheds: Peñas Blancas, Reventazón, Savegre and Pejibaye. The first two rivers drain to the Atlantic coast and the other two to the Pacific coast of Costa Rica. These watersheds are home to important communities, whose sources of livelihood include coffee production, double-purpose and dairy cattle ranching, forestry, and cultivation of flowers and ornamental plants. Furthermore, the feasibility of setting up new hydropower plants is being evaluated for all four rivers.

The study considers social, biophysical and economic aspects of valuation of environmental services. In order to estimate the economic value of the ecological services provided by forests, the costs of changing from the main agriculture activity to forest are assessed, as well as the costs of maintenance of forest cover. The opportunity costs include the costs and benefits of forestry activities and environmental education. Market prices are used as these are based on available and reliable data.

Valuation results

A range of values has been estimated for the overall ecological services provided by

forests in the four watersheds. Based on replacement and maintenance cost, these values[1] are estimated at 100 US$/ha per year for Peñas Blancas, 133 US$/ha per year for Reventazón, 138 US$/ha per year for Savegre, and 176 US$/ha per year for the Pejibaye watershed. This implies that if the provision of hydrological services is to be guaranteed in the long term, the landowners would have to receive at least 100 US$/ha per year in terms of additional income in order to protect forest cover or commit themselves to reforestation activities.

Of course hydropower companies would be willing to pay only for the hydrological services related to hydropower generation. If other forest ecological services would also be paid for, by means of benefits from ecotourism, carbon sequestration or biodiversity conservation, the amount could increase to meet the opportunity cost. However, in the case of Pejibaye watershed for instance, it should be questioned whether the internalisation of benefits from forest cover could form a competitive alternative to the current highly profitable coffee cultivation activities. There, it seems worthwhile to explore the possibilities of adaptation of the existing land use (e.g. by changing to coffee with shade trees).

Perspectives

The research will result in the description of proper mechanisms for implementation of PES in relation to hydrological services. It will provide tools in support of policy mechanisms that will encourage FONAFIFO negotiations with private and governmental organisations that consume water. In a broader sense, it will generate practical recommendations to policy makers of Costa Rica and other countries involved in the development of financing instruments in order to improve the effectiveness of local and national forestry strategies.

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1 Note the values correspond to the present value of the net benefits (discount 9.8%)

Financing reforestation for improved watershed management in the Philippines

By Danilo C. Mero

In 1992, the National Power Corporation (NPC), a government operated and controlled corporation, secured funds for the development of about 1,000 hectares of tree farms within the Lake Lanao – Agus River watershed reservation in Lanao del Sur, Philippines. A financial contribution of about 1.1 million US$ was made by the Mindanao Association of Electric Cooperatives. This amount represents corporate investment of industries and utilities for the improvement of hydro-electric power generation. It was used to finance development activities in reforestation and environmental rehabilitation for improved water yield, in determined areas within the watershed reservation. A description of the highlights of the said project can probably lead to a better understanding of the socio-economic issues and concerns in watershed management.

Objectives of tree farm development

The general aim of the reforestation project was to ensure stable hydro-electric power generation of the Agus plants through improved water yield of the Lake Lanao – Agus River watershed reservation on a sustainable basis. The specific objectives of

the project were:

- to develop about 1,000 hectares of tree farms within the Lake Lanao – Agus River watershed reservation in three years from 1993 to 1996;
- to raise the level of awareness of the stakeholders on the value of the watershed and the need for its protection and conservation; and
- to gain the support of the stakeholders for the project.

NPC played a key role in the watershed management of the Lake Lanao – Agus River area. This role can be viewed from two different angles. In the first place, their interest was of course to sustain the operation of the six Agus hydro-electric power plants, which according to NPC was linked with an internal corporate drive towards environmental excellence. Secondly, they played a role as a catalyst in the process towards balanced overall development within the Lake Lanao – Agus River watershed and the Island of Mindanao. NPC's linkages with and active participation in the Lake Lanao Watershed Protection and Development Council proved to be elemental in achieving this.

Community participation in reforestation

Community participation was ensured after six to nine months of social preparation prior to the initiation of the project. More than 150 individual cooperators representing their households participated by way of a contract for the development of their area into tree farms. Technical support and assistance was provided by the Paper Industries Corporation of the Philippines (PICOP). More than 1,500 hectares of private land were developed into tree farms and were planted with *Acacia mangium, Durio zibethenus* and other indigenous tree species. Non-cooperators requested seedlings from the project for their own reforestation activities, thus supporting the project.

Post-project monitoring and evaluation of the established tree farms indicated a very high tree survival rate of 98 percent and favorable growth rates. In 1996, the project was transferred by PICOP to NPC who then continued the rehabilitation effort through internal funds. By the year 2001, most of the *Acacia mangium* trees are of harvestable age. NPC is in the process of assisting the tree farmers in the optimal utilization of their trees. This innovative experience in financing reforestation is much of a success story, overshadowing the government's performance related to efforts by the Department of Environment and Natural Resources.

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Payment for hydrological services in the Ecuadorian Andes: Water taxes and water funds at municipal level

By Robert Hofstede and Montserrat Albán

In Ecuador, a small country with a high biodiversity in the Northwest of the South American continent, almost the entire population of 12 million people depends on the environmental services provided by the Andean natural ecosystems. Particularly the fresh water supply, regulated by 30,000 km^2 of remaining Andean forests and 12,600 km^2 of high altitude páramo grasslands, is of utmost importance for

irrigation, drinking water and electric power generation. Nevertheless, the pressure on the natural areas of the Andes is high and destruction of forests and páramos is a major threat to the sustainable production of areas downslope.

Different initiatives are being developed to provide local farmers with an alternative to unsustainable forest and páramo management. In three municipalities of different size, systems of payment for environmental services are being implemented. The purpose is to assure nature conservation for the regulation of water flows. Probably due to the differences in local reality (different size of the municipalities and different economical, historical and institutional contexts), each of the three mechanisms is unique and they have different levels of success and disadvantages.

In Quito, an estimated population of two million people benefits from the water that originates from the páramos in five protected areas around the city. Supported by several local NGOs, international donors and the Ministry of the Environment, the municipal water company (EMAAP-Q) identified the need for integrated and long-term management of these protected areas. The conservation of this so-called "Bioreserva del Condor" should be executed by local organizations and with participation of the landowners, according to a collectively developed management plan. The implementation of the management plan was to be financed by the interests of the "Fondo de Agua" or water fund created in 1998 (Echavarría & Granizo, 2000). This fund received an initial donation of international donors and is planned to increase by a levy of (on average) 1% on the price of drinking water and by voluntary donations of major water consumers in agriculture and industry. The structure of the water fund appears to be promising, efficient and transparent. Furthermore, the decision to invest into conservation activities instead of a direct payment to landowners for conservation is well chosen in this area. Nevertheless, the fund is still far too small to generate sufficient interest. A strong economic recession struck Ecuador shortly after the creation of the Fund, decreasing the willingness to pay of the city inhabitants and large consumers, and no agreement could be reached on the percentage of the raise.

In Cuenca, a city of 300,000 inhabitants in the South of the Ecuadorian Andes, the municipal water company (ETAPA) achieved an initial 7% raise of the gross water price in 1996, which was directed to their environmental unit. The money was used to purchase three areas of natural Andean forests and páramo grassland in the buffer zone of the El Cajas national park, which covers a large part of the catchment area for drinking water of Cuenca (Turcotte *et al.,* 1999). The three reserves, comprising 9000 ha are fully protected, allowing only limited recreation activities. Since 2000, the Ministry of the Environment transferred the responsibility for management of the entire El Cajas national park to the Municipality of Cuenca. The management is executed by ETAPA. In this experience, the protection of natural areas appears to be assured, but voices of discontent among local inhabitants are notable due to the narrow focus on water resources and the status of absolute protection.

In the North of Ecuador, the small municipality of Pimampiro (22,000 inhabitants) did not have a proper drinking water system. Most inhabitants received water only during two hours every day. By digging a tunnel, water became available from a spring at a distance of 15 km, located in an Andean mountain forest. This

increased the service to six hours per day. Meanwhile, the environmental division of the municipality created the "Fund for the Payment for Environmental Services", assisted by a local NGO for rural development (CEDERENA *et al.,* 2001). This fund received an initial 15,000 US$ of international donations, and is growing through a 20% levy on the price of drinking water. The population's willingness to pay is high because of the strongly improved water service. The interest of the fund is divided among the landowners of the capture area, under an umbrella agreement defining a sustainable management scheme for the area. The payment equals to 1 US$ per month per hectare of forest, and 0.50 US$ per hectare of páramo grassland. The implementation of the system started in June 2001 and received many positive reactions. However, the fund is still not large enough to pay all farmers, and those who receive compensation complain that it is insufficient.

These three examples all represent initiatives in which charges on water consumption are directly invested into the conservation of forests and páramo grasslands in the watersheds concerned. The mechanisms differ in the way of financing (through a water fund versus direct revenues), the actors involved (international donors, NGOs, municipalities, Ministry of the Environment) and the destination of the money (conservation activities, purchase of land and direct payment to landowners). Probably, the mechanism of Quito is the most promising on the long term, that of Cuenca the most efficient in terms of actual conservation, and that of Pimampiro the most socially justified. The main lesson is that none of the systems is perfect but that each of the initiatives is adapted to a specific local reality: successful experiences are therefore only in part applicable to other areas.

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VI FOCUS ON SUSTAINABLE LIVELIHOODS AND POVERTY ALLEVIATION

This final section of the newsletter elaborates on financing mechanisms in support of sustainable livelihoods and poverty alleviation. In their article, Rob Hope and co-authors analyse two forest/water policy instruments aimed at improvement of the livelihoods of poor people and protection of the resource base, for a pilot watershed in South Africa as part of the CAMP project. One is a compensation mechanism of payments for water consumption of forestry activities upstream to poor water users downstream, while the other aims to control alien species to increase the productivity of the resource base. Paul van Gardingen highlights new research opportunities within

DFID's Forestry Research Programme: the Multiple Objective Forest Management cluster aims to increase the range of goods and services provided by forests, and pays attention to economic and financial instruments. The article by Diwakar Sinha describes the implementation of revolving funds at village level in India, in relation to integrated watershed management including reforestation activities. Other articles in this issue also pay attention to sustainable livelihoods and poverty alleviation in combination with other objectives: e.g. that of Natasha Landell-Mills and co-authors (Section III), and the articles in Section IV on carbon sequestration.

Saving the trees and the poor? Catchment Management and Poverty (CAMP)

By R. Hope[1], I.R. Calder[1], J.W. Gowing[1], N. Laurie[2], P-J. Dixon[3], C.A. Sullivan[4], N.A. Jackson[4], G. von Maltitz[5], J. Bosch[5], D. LeMaitre[5], P. Dye[5], T. Netshiluvhi[5], N. Hatibu[6] and G. Paterson[7]

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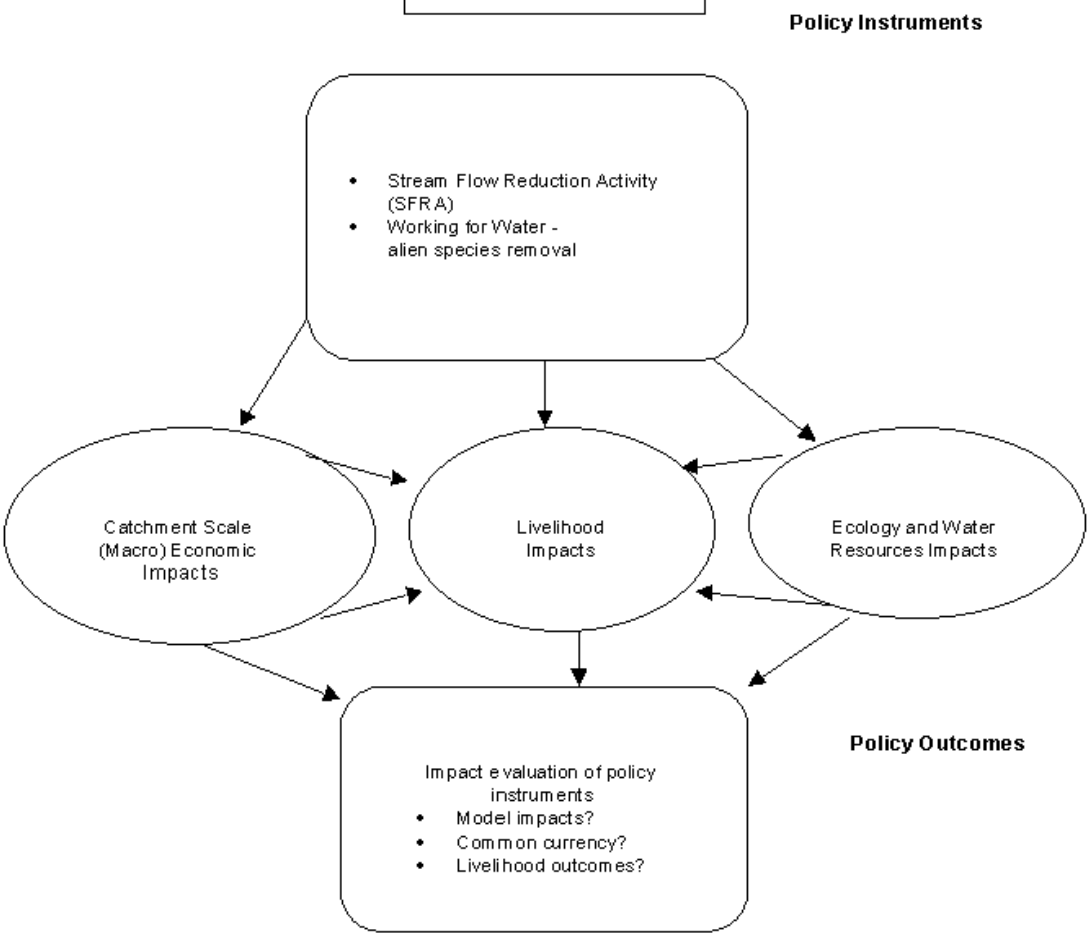
In water-stressed environments, the livelihoods of poor people are directly affected by their access to natural resources, including water and forests. Policy formulation and evaluation seldom links land-use planning across the catchment scale to poverty alleviation goals at the livelihood level. Concern exists over the inadequate consideration given to the impact of forestry operations, and in some cases the escape of alien species, on water availability and the subsequent livelihood impacts.

The CAMP (CAtchment Management and Poverty) project is investigating Integrated Water Resource Management (IWRM) and Sustainable Livelihoods (SL) approaches to land and water management within the Luvuvhu catchment, South Africa, as a means towards identifying policy instruments that both improve the livelihoods of poor people and protect the resource base. The project employs macro-scale hydrological and economic modelling combined with household-level SL assessment to examine the effects of alternative policy instruments relating to forestry and water allocation. The application of modelling methodologies will be later tested in Grenada, and stakeholder consultations in Tanzania will provide additional insight into the transferability of project outputs.

Two forest/water policy instruments are currently being investigated within South Africa. Stream Flow Reduction Activities (SFRA) recognise that forestry in South Africa generally has an adverse impact on water resources. Following the National Water Act (Act 36, 1998), land uses such as commercial forestry have been designated as a SFRA and land owners will be charged in accordance with the estimated flow reduction that these land uses incur. The Working for Water (WfW) programme aims to remove alien invaders simultaneously freeing-up water resources

Figure 1 CAMP methodology



by removing the threat to indigenous vegetation and providing a source of income to the poor.

The manner in which the application of these policy instruments affects catchment water resources, economics and livelihoods is the main focus of the CAMP study. CAMP will seek to identify and prioritise the key interactions between these impacts and will seek at the minimum a qualitative, but preferably a quantitative, modelling framework for assessing the policy outcomes. (Figure 1)

Research catchment

CAMP's study site is the Luvuvhu catchment in Northern Province, covering 5940 km² and forming part of the larger Limpopo system. The catchment is characterised by the Soutpansberg range to the north-west with a higher precipitation regime (>1000mm) and plantation forestry and commercial agriculture as the dominant land-use, falling easterly to the main urban settlement (Thohoyandou, population 450,000) and then to drier (<500mm), fragmented, rural communities that lead to the border of the Kruger National Park, finally draining into the Limpopo at the Zimbabwe/Mozambique border.

The catchment is predominantly populated by Venda speaking communities that represented one of the 'homelands' under the apartheid regime before the new dispensation in 1994. Xitsonga is the other major black language spoken with Afrikaans dominant among the white community. Northern Province is one of the poorest regions within South Africa under almost every socio-economic classification.

With the implementation of the National Water Act, efficient, equitable and sustainable water management are the key aims under which devolvement of water resource management, delivery and maintenance is being ceded to 19 water management areas, within which Catchment Management Agencies (CMAs) and Water User Associations (WUAs) are in the process of being formed. Integral to this process is the priority status of the ecological and human 'Reserve', which ensures that environmental and equitable distribution of the water resource has primary consideration. The efficiency-equity interface of the NWA fits closely with the thematic tension in CAMP's research into human versus resource-first policies and outcomes.

Innovative financial mechanisms

SFRA and WfW offer two potential policy mechanisms for conservation and sustainable forestry management (see http://www.dwaf. gov.za). The former was clarified within the NWA and recognises the integrated nature of catchment management, particularly upstream-downstream linkages between competing water users. The main commercial alien species are wattle, pine and eucalypts. Within the Luvuvhu, upstream water users are primarily white-run forestry plantations and commercial agriculture, whilst in the mid and lower reaches the majority of water users are blacks with limited or no access to the water resource. SFRA as a compensation mechanism for this unequal access to a public good may mitigate inequalities and aid poverty alleviation. Water licensing is now mandatory and the key mechanism that the new water management paradigm is championing as the key to efficient and equitable water resource management. The process of negotiated payments from key land-use groups (notably forestry) is fairly advanced with a payment vehicle per species/hectare being proposed on completion of the licensing programme.

The WfW programme began in 1995 with the aim of controlling alien species to achieve water security, ecological integrity and social equity through job creation. National run-off simulations have predicted a 73% reduction within a 20-40 year time-frame if no action is taken against alien invaders. WfW qualifies as a financial mechanism due to its beneficial linkage between optimising the productivity of the resource base (land/water) by the public works removal of alien species. The net financial benefits to South Africa plc are considered significant. The social component of the programme has gained more prominence within the 'new' South Africa targeting women, youth and disabled groups. The WfW programme embodies the resource-human interface particularly within the poorest communities where reliance on the natural resource basis is the most pronounced.

Results to date

CAMP is currently developing innovative methodologies to model water resource and ecological impacts, a resource economic model of the net precipitation value, and livelihoods' analysis from quantitative and qualitative research at the catchment scale. Reports and analysis are available at the CAMP website.

For further information, please visit the project website: http://www.cluwrr.ncl.ac.uk/projects/camp/index.html or contact:

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Yield regulation and Multiple Objective Forest Management

By Paul van Gardingen

Weaknesses in the theory and practice of yield regulation often result in the rate of extraction of goods and services exceeding the ecological capacity of the resource to recover. As a result, the extent and quality of forests decline and there is increasing conflict between stakeholders who are dependent on forests for their livelihoods. The Forestry Research Programme (FRP) of the United Kingdom Department for International Development (DFID) is supporting research to develop tools and approaches to regulate the yield of goods and services from forests. The first phase of this work has focused on the improvement of tools for growth estimation and yield prediction. This has involved the development of the SYMFOR framework (Silviculture and Yield Management tools for tropical FORests) and MYRLIN (Methods for Yield Regulation with Limited Information). See also www.symfor.org and http://www.myrlin.org

Financial viability

The methods developed by these FRP projects are being extended to address the needs of a wider range of stakeholders. A series of pilot studies are being conducted with groups in Indonesia, Guyana, French Guyana, Brazil and Ecuador. The pilot studies are linking growth and yield estimation tools with methods for economic and financial analysis. The first study in Indonesia demonstrated that forest management practices proposed for areas of logged-over forest would not be financially viable (McLeish & Farida Herry Susanty, 2000). More recent work shows that alternatives may result in a "win-win" situation, where good forest management can maintain the forest resource whilst still delivering financial returns with an internal rate of return exceeding 10 percent.

Two workshops were held during 2001 and identified constraints to effective yield regulation in a range of countries. Major

challenges remain in many tropical countries because of the prevalence of forest piracy and the lack of incentives for sustainable management of forests. Alternative land uses are often more profitable, resulting in high opportunity costs associated with the adoption of improved forest management practices. Furthermore, some options for sustainable forest management may maintain or increase the marginalisation of stakeholder groups leading to increased conflict and potential for illegal harvesting or destruction of the forest resource.

Development of sustainable alternatives

New research initiatives are required to provide financially viable and socially acceptable alternatives to bad management and piracy. Future research on timber yield regulation needs to be integrated with a consideration of the policy, financial, economic and social environments that will influence behaviour. This has implications for forest researchers as well as policy makers, planners and managers. Future activities need to address the following issues:

- The legitimate roles of a wider range of stakeholder groups;
- The potential for a wider range of goods and services from forests to contribute to income, livelihoods and poverty alleviation; and
- New ways of working that break down traditional barriers between professional groups, disciplines and social groups.

Multiple Objective Forest Management

DFID's Forestry Research Programme is meeting this challenge by designing a cluster of research projects for yield regulation for goods and services from forests entitled Multiple Objective Forest Management (MOFORM).

The following topics will be included in a restricted call for proposals:

1. Establishment of multiple stakeholder partnerships in partner countries

The cluster will seek to develop a number of partnerships in Asia, Latin America and Africa. These partnerships will form the focus for research, training and dissemination activities of the MOFORM cluster in each country or region.

2. A state of knowledge review on yield regulation

A review of theory and practice for timber yield regulation is proposed for 2002. Among other things, the review will consider the needs for new approaches for yield regulation resulting from the involvement of a wider range of stakeholders in forest management and the production of a wider range of goods and services from forests.

3. MOFORM Toolbox

The toolbox project will adapt existing, or develop new tools and approaches supporting multiple objective forest management. The topic will include methods for yield regulation of non-timber forest products to meet needs identified at a previous joint FRP-ETFRN workshop held in Rome during 2000 (Wong, 2000).

4. Economic and financial tools and instruments supporting MOFORM

This topic will produce a guide to which economic and financial tools and instruments are most appropriate under specific circumstances. Concepts illustrating this topic are given below.

Common currency

The fourth topic will explore the development of a common currency that allows rational debate between stakeholders who exclusively use methods of monetary valuation and those who also consider social and cultural values. The "common currency" will be applied to the aim of reaching a consensus on decisions that produce the greatest net social benefit. This in turn should lead to decision support systems that are less reliant on research data and will help to rationalise decisions

on changes in forest and land use.

Compensation mechanisms
Research related to the fourth topic will also consider compensation mechanisms that have potential to transfer value captured by downstream users and consumers of goods and services, to benefit those forest managers who adopt sound land and forest management practices upstream. This must include the development of equitable mechanisms for the capture and distribution of benefits (value) resulting from sustainable forest management. The decision support systems may include water, carbon and biodiversity markets. In addition, a more rational approach should enable greater consensus to be obtained on taxation regimes for forests and lands in marginal areas.

Partnerships
The MOFORM yield regulation cluster will work closely with partners in both developing and developed countries. We are most interested in hearing from any individual or organisation that is interested in contributing to any of the above research themes including the establishment of multiple stakeholder partnerships in potential target countries.

For more information please visit the MOFORM website (http://www.moform.org) or contact:
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The revolving fund mechanism adopted for watershed management in India

By Diwakar Sinha

Forests in India used to be considered primarily as productive entities. They were looked upon as sources of fuel, fodder and timber together with minor forest products such as bamboo, grasses, fibres and honey. In the late seventies, the adoption of the concept of sustainable management of forests led to a growing interest in the regulation functions of forests. The National Forest Policy of 1988 introduced the concept of participatory forest management on usufruct sharing basis. The new approach included active participation of village communities and voluntary agencies in sustainable forest management and socio-economic development. This resulted in the development of Joint Forest Management (JFM) programmes in 22 States. By now, about 36,130 Forest Protection Committees are managing a total of about 10.25 million ha of forests. Additionally, a programme on National Watershed Development Projects for Rain fed Areas (NWDPRA) was launched in 1990, covering 25 States and 2 Union territories. The programme aims to sustainable biomass production and restoration of the ecological balance in rain fed areas. In this framework, international donors assist watershed and agricultural development projects. Most projects provide incentives and training to the villagers to bring about changes in attitudes towards the use of forests and the environment.

Community participation in watershed management
The Doon Valley Integrated Watershed Management Project is one of the leading

watershed management projects of North India. It is a nine-year project ending in 2001 led by the Ministry of Agriculture. The project is implemented in 303 villages covering an area of about 2508 km^2. The principal problem addressed by the project is that the fragile ecosystems of Doon Valley suffer from increasing human pressure. The urban population is increasing and agricultural lands are rapidly encroaching steep hill slopes, thereby degrading the forest resources. The extraction of firewood and fodder from the forests further contributes to the degradation process. In the past, state government investments in reforestation were largely ineffective. Being open access lands, neither the government nor the communities protect the forests. The project is meant to motivate the villagers to become economically self-sufficient and less dependent on the forest resources. The main project components are agriculture, horticulture, animal husbandry, minor irrigation, soil conservation, energy and forestry. On the long term, the project should reduce the on-going degradation of the Doon Valley ecosystems, improve the living conditions of the rural people, and ensure their participation in managing the environment. The immediate objectives include sustainable natural resources management, increasing productivity of land and water resources, strengthening of community participation, and the improvement of the socio-economic conditions of disadvantaged groups, particularly women. The village is treated as a basic unit that manages its natural resources through community participation. Village plans evolving from participatory rural appraisal play an important role.

Revolving funds

In each village, a revolving fund is developed to ensure optimum utilization of the available financial resources and sustainability of the created assets. The purpose of this fund is to meet the small needs of the local people and self-help groups. Rules have been framed in support of the effective functioning of this financing mechanism. Any loan from this fund is given on easy terms and without security or legal formalities. The rate of interest is nominal and decided by the community itself. Studies have revealed that the percentage of defaulters regarding repayment of these loans is very low. Group and social pressures are considered the main cause. All villagers contribute regularly to the common fund as defined and accepted by the whole community in a general meeting. The general body that maintains and operates the revolving fund is known as Gram Resource Management Association (GAREMA). Gram in Hindi language means village. GAREMA has a male and a female representative from all village households. In some progressive villages, revolving funds are linked up with national bank, which has proved to be a boon for the local people.

Alternative sources of income and energy

With the project in its last year of operation, marked changes are visible. Subsidies and loans have supported the start of income-generating activities such as cultivation of high-income cash crops, poultry and dairy cattle keeping, fruit preservation practices, pickle making, sewing and stitching, light bulb making, and fish cultivation in individual as well as community tanks. Savings/credit groups with revolving funds have been established, supported by contributions from the villagers and the project. Training activities emphasize the interrelation between the environmental and economic dimensions of sustainability. Here it is important to note that the use of non-conventional energy devices and liquid petroleum gas have proved their worth in saving forest on one hand and generating time for the people on the other. People are dedicating this time saved to income

generating activities and other important aspects of life like health, hygiene and education.

Lessons learnt

During project implementation, a major problem was in the first place to influence the attitudes of the villagers towards optimal use of the available resources. A second important aspect that required considerable effort was the capacity building of the village people. The third problem was that they were reluctant to redefine the daily work schedule and adopt innovative technologies in order to utilise the time efficiently to generate more benefits. Demonstrations, training sessions, and subsidy for adoption of new technologies were used to tackle some of the problems. Furthermore, there were awareness programmes, and people were stimulated to participate in the different phases of developmental programmes including self-evaluation. This has helped the villagers to take constructive steps in the direction of optimum utilisation of the available resources for socio-economic development in combination with sustainable forest management. The use of revolving funds has played a significant role in this process. The mechanism of revolving funds is considered of great significance to other developing countries having similar problems and biophysical conditions.

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By Jelle Maas

Forest World at **www.forestworld.com** is an online marketplace for certified forest products. It also offers information on certification & sustainability, forest industry and woods of the world.

www.prototypecarbonfund.org/ is the site for the World Bank's Prototype Carbon Fund, a new product that aims to demonstrate how project-based emissions transactions can mitigate climate change. The site is an integral part of the PCF's aim to gather, analyse, and disseminate knowledge gained from a "learn-by-doing" approach.

Resources for the Future (**www.rff.org**) is a nonprofit and nonpartisan think tank based in Washington DC conducting independent research on environmental and natural resource issues. Their site includes the following articles on biodiversity prospecting: *Capitalising on Biodiversity* - about Brazil's experiences in biodiversity prospecting **http://forests.org/archive/brazil/brcbiodb.htm** *Biodiversity Prospecting: Shopping the Wilds Is Not the Key to Conservation* by R. David Simpson **www.rff.org/resources_articles/files/biodprospect.htm**.

The Programme for Forests (PROFOR**)** of UNDP provides several (PDF) publications on financing sustainable forest management: **www.undp.org/seed/forest/pages/ publications/financing_SFM.html**

The Biodiversity Economics Library **http://biodiversityeconomics.org/index.htm** by IUCN business and biodiversity initiative: **http://iucn.org/themes/business/index.htm**

The IIED Forestry and Land Use Programme has a project on Instruments for Sustainable Private Sector Forestry which has produced several reports that can be downloaded from their publications webpage. **www.iied.org**

The African Forest Economics Newsletter of the FAO is available at **www.fao.org/forestry/fon/fons/financing/afe_2_en.htm** A FAO synthesis paper summarising the information presented in 26 country reports compares and contrasts the many different ways in which forest revenue systems are designed and implemented in different African countries and presents estimates of the total financial flows between government and the forestry sector **www.fao.org/DOCREP/003/X6830E/ X6830E00.HTM**.

Ecological Economics **www.elsevier.nl/locate/jnlnr/05100** published by Elsevier, is the Transdisciplinary Journal of the International Society for Ecological Economics **www.ecologicaleconomics.org/**

ForVal online (short for Forest Valuation) is an online forestry investment calculator developed by Steven Bullard of the Mississippi State University.
www.cfr.msstate.edu/forval/

The Journal of Forest Economics is a scientific journal published by the Swedish Agricultural University in Uppsala. Index: **www.sekon.slu.se/~oca/eng/publ/jgeneral.htm**

The African Centre for Technology Studies, an international inter-governmental policy research and training organization in Nairobi, Kenya, focusses on implementation of Agenda 21 and conventions on biological diversity; climate change; and desertification. **www.acts.or.ke/**

Documents for the Second Substantive Session of the United Nations Forum on Forests (San Jose, Costa Rica, 4-15 March 2002) are available at: **www.un.org/esa/sustdev/unff2001_ omdoc.htm**.

"Small grants programme for operations to promote tropical forests"

The official launch of the "Small Grants Programme for Operations to Promote Tropical Forests" (SGP PTF) was made through the Regional Inception Workshop in early December 2001 in Los Banos, Philippines. Funded by the European Commission (EC) the SGP PTF is managed by the United Nations Development Programme (UNDP) through the Executing Agency, the SEAMO Regional Centre for Graduate Study and Research in Agriculture (SEARCA).

The overall operation is for five years with EC contribution via the Tropical Forest Budget Line of 15,132,500 Euros. Operations will take place initially in four countries (Pakistan, Philippines, Vietnam, Thailand) with the possible expansion to other countries in South and South East Asia when conditions are propitious.

The SGP PTF will complement the existing Global Environment Facility Small Grants Programme (GEF SGP) and related financing instruments to benefit poor and underprivileged forest user groups by pursuing the following key objectives: (a) act as catalyst to promote and demonstrate community-based management and resource-use in tropical forests; (b) draw lessons from local experience and support the spread of successful community-level strategies and innovations; (c) build grassroots level capacity to tackle problems that are contributing to forest destruction and degradation through partnerships and networks.

The principal thrust of the SGP PTF will be the execution by civil society organizations at country level of small (20,000 – 200,000 Euros) forest related projects.
The programme will benefit from the experience acquired both by the GEF SGP and by EC forestry programmes in the region. The community focus of the SGP PTF will be further enhanced through extensive networking and collaboration to draw on the expertise of a number of institutions in the region with rich experience in community-based tropical forestry.

The SGP PTF will be implemented in two phases with an initial start up phase in which the technical, administrative and financial framework for the operation will be finalised. It is during this phase, to be completed by March 2002, that country-specific guidelines for the selection of local project proposals will be drawn up. This process, carried out in close collaboration with local stakeholders, will be coordinated through National Steering Committees and managed by PTF Coordinators. The completion of this phase will be announced with a formal call for proposals detailing eligible organisations and thematic areas; the application and selection procedures; and the roles and responsibilities of the grantees and the SGP PTF.

For further information on the SGP PTF please contact;

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Courses on Environmental Services at the World Bank

With reference to the article in this issue titled "Current work on environmental services at the World Bank" (page 6) The Bank is also aware of the need for capacity building and training and has developed a two week training course for senior level technical staff of government agencies on environmental services.

Non-governmental and private sector organizations are encouraged to participate. The training course is very much a hands-on and case study centric exercise. The where, how and why specific tools work or do not work is presented in an intensive participatory workshop environment.

The benefits envisioned are increased generation of valuable services to the country and their protection. With an eye towards financial sustainability payments for environmental services should be made privately viable where possible. Two courses have thus far been imparted (Ecuador and Venezuela) with three others in the pipeline.

The Bank welcomes those who are interested in pursuing this training course in their countries to contact the author of the newsletter article.

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Forest Conservation in the Forgotten Philippines

By Craig Turner

The Philippines is recognised as a global biodiversity hotspot and considered an international conservation priority. However, conservation is arguably being led at the local level. On one island, the Negros Forests and Ecological Foundation, Incorporated (NFEFI) has formed a unique conservation partnership with Coral Cay Conservation (CCC), a UK based NGO, to fund and facilitate sustainable conservation.

NFEFI and CCC have established the Negros Rainforest Conservation Project (NRCP) in the highly threatened Negros-Panay faunal region of the central Philippines. The NRCP aims are comparative to other biodiversity conservation projects in montane forest areas. However, it is the mechanism by which it achieves these goals that makes the project unique. CCC provides the resources to the project in terms of highly qualified scientific and technical staff, equipment, and a constant year-round stream of self-financing conservation volunteers. Under the guidance and training of the project staff, the volunteers (including sponsored local students and in-country counterparts) are provided with the necessary knowledge and technical skills to undertake natural resource assessments and contribute to the overall education, restoration and sustainable management objectives of the project.

The project is therefore participatory on a number of levels. NFEFI further facilitates liaison with local community groups, local government bodies and other NGOs, ensuring integration of all other stakeholders. The project promotes local

ownership, involvement and benefit, and the operational structure (utilising self-financed volunteers) means there is virtually no cost to the host country or local NGO, and no dependency on external funding agencies. At a time when all conservation organisations strive to achieve financial sustainability, the NFEFI/CCC partnership offers one possible solution.

CCC is continually recruiting volunteers for the NRCP and for more information, please contact:
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Prototype Carbon Fund Releases EcoSecurities Market Intelligence Report on emerging greenhouse gas policies

EcoSecurities Ltd. is pleased to announce the release of the World Bank Prototype Carbon Fund's "Carbon Market Intelligence Report: Issue 2." Commissioned by the PCF Plus, this report details the emergence of carbon market policies up to COP 7. The focus of the report is on the development of greenhouse gas emission reduction requirements and associated policies at various national and sub-national levels.

Svetlana Morozova, a senior analyst for EcoSecurities and principal author of the report, says "The report will benefit the growing audience of private and public groups interested in the uneven progress of greenhouse gas reduction policies across the many jurisdictions of North America, the European Union and the rest of Annex 1".

Following on the first PCF Market Intelligence report released in July of 2001, the second installment of the project extends a number of topics. It reviews Annex I's national greenhouse gas emissions profiles, analyzes new policy positions of various EU jurisdictions and assesses implications of the Bonn agreement. In addition, the second report provides an in-depth review of various legislative proposals concerning reduction of greenhouse gas emissions in a number of American states, following the official withdrawal of the United States from the Kyoto Protocol.

In the course of report preparation, EcoSecurities has interviewed more than 100 public officials and private-sector stakeholders in the United State and Europe, including representatives of the US regional energy commissions, the US EPA and a number of European agencies, among others.

Both reports, supplemented by a series of Appendixes, are available through the Prototype Carbon Fund "PCF PLus" website, in the research section. For direct access to the 2nd report, click **http://www.prototypecarbonfund.org/docs/ecosecurities_2nd_report.pdf** To access the earlier report, please go to **http://www.prototypecarbonfund.org/docs/ecosecurities_1st_report.pdf**. The third and final report is expected for release in the first quarter of 2002.

EcoSecurities is an environmental investment and advisory firm that specializes in services to facilitate innovative environmental finance solutions

for renewable energy and other environmentally sustainable processes.
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FLOWS - addressing issues in and between land use, hydrology, forests, economics, water resources management, social and environmental sustainability

FLOWS is a free service, developed and produced by Bruce Aylward and Sylvia Tognetti, with support of Forest Trends, www.forest-trends.org, and the Environmental Economics Programme of the International Institute for Environment and Development www.iied.org\enveco\ .

FLOWS provides an independent perspective and commentary on key papers addressing hydrology, economics, and the development of markets, policies and institutional arrangements for watershed services. FLOWS was created to keep its readership up to date and informed regarding:

- the hydrological impacts of land use change and their socio-economic consequences;
- efforts to achieve cost-effective, environmentally sound and socially equitable solutions to land use/forest/water problems; and
- the potential role and scope of ecosystem management and market-based instruments as options for improving water resources management.

For an example of FLOWS messages, please see the news items on Useful myths (p.60) and on the new E-journal on land use and water resources research (p.62)

FLOWS will be issued (in English and Spanish) once or twice a month, or when there are papers that merit a wide circulation. To sign up for FLOWS please send a message to listserv@cgnet.com with the message SUBSCRIBE FLOWS in the text (not the subject header).

General comments on FLOWS are welcome. Please send them to flows@forest-trends.org.

Useful myths and Intractable Truths: The Politics of the Link between Forests and Water in Central America

Source FLOWS List (see above)

Decisions to support watershed management programs often have been justified based on generalizations: that forest cover reduces flooding, increases dry season flow, increases rainfall, and reduces sedimentation. The discerning reader will realize that one of the reasons why this listserve exists is that reality is much more complicated than this. David Kaimowitz, the new Director General of the International Center for Forestry Research (CIFOR) brings this point home in a

thought-provoking paper entitled “Useful Myths and Intractable Truths: The Politics of the Link Between Forests and Water in Central America.”

Kaimowitz provides a pithy review of the scientific literature on hydrological response to change in forest cover and then goes on to examine four Central American cases. His conclusion? That these generalizations and the accompanying claims of high medium-term costs of degradation of hydrological function are often overstated. His analysis suggests that such claims have served as a convenient means of justifying investments in watershed management - in particular soil conservation and tree planting - thereby supporting the agendas of many agencies, NGOs and international donors. Hence, these claims have gone largely unquestioned. In these examples from Central America, watershed management concerns go back to the early part of the last century but did not get placed at the top of political agendas until they were linked to the sedimentation of hydroelectric dams (which could threaten urban energy supplies), to the operation of the Panama Canal (with its benefits to global commerce and the U.S. military), and to reduction of vulnerability to disasters (following the "apocalyptic rampage" of Hurricane Mitch).

Kaimowitz coins the term “useful myths” for these claims because despite the marginal ability of the resulting projects to achieve their watershed management objectives they have “generated a favorable climate for addressing environmental issues” in the region. Kaimowitz feels that the value of this should not be understated given the “intractable truth” that it is difficult to link on-farm activities to landscape level problems and even more difficult to convince policymakers to attend to long-term environmental problems. The case studies make fascinating reading, providing windows on the practical (and often convoluted) technical and political machinations of the watershed management “business.” Indeed, Kaimowitz raises a rich set of questions and issues - to the point where some of the examples he cites could cause an anxious taxpayer to raise the question of what is the appropriate boundary between doing the right thing for the wrong reason and doing the wrong thing for the wrong reason.

To take just one of many issues raised in the paper, Kaimowitz returns repeatedly to critique the utility of standard, discounted cost-benefit analysis as a useful tool for assessing the long-term threat posed by sedimentation (even if less than is claimed) to the lifespan of large dams (the El Cajon, Cerron Grande and Panama Canal dams are the topics of three of the case studies). Indeed, the pitfalls of cost-benefit analysis with respect to dams is well-established, for example the World Commission on Dams has recently concluded that it is a necessary but not sufficient means of assessing dam projects.

As long-lived capital investments Kaimowitz cites a recent figure that Cerron Grande still has 172 years to go - the use of zero or low discount rates to place more value on future costs and benefits makes the benefits of dams enormously attractive. Of course, large dams have their own complex set of social and environmental impacts so that fiddling with the discount rate may not be the solution. However, it is worth noting that as with the decision to invest in soil conservation, the decision to engage in watershed management is not a one-time only decision, rather it is an option that can be taken at any point along the lifespan of a project. Using a more dynamic options approach to valuing sedimentation impacts (see the reference to the papers by the WCD and Walker below) might thus serve as a more meaningful and

practical way of providing advance warning of the point at which the benefits of acting will outweigh the
costs of waiting.

Papers:
The paper by Kaimowitz can be obtained from Inna Bangun
mailto:i.bangun@cgiar.org
and comments on the paper can be sent to mailto:d.kaimowitz@cgiar.org

The World Commission on Dams report can be downloaded from www.dams.org and the thematic paper on economic analysis of dams which includes chapters on discounting and the options response to the problem of uncertainty, timing and irreversibility in project investment can be downloaded from www.dams.org/thematic/ tr31.htm

For more on the options approach to investments in soil conservation see Walker, D.J. 1982. A Damage Function to Evaluate Erosion Control Economics.
American Journal of Agricultural Economics 64 (11): 690-698.

E-Journal on Land Use and Water Resources

This is to draw your attention to a new E-Journal on Land Use and Water Resources Research edited by Ian Calder. The first issue, now available on-line at **http://www.luwrr.com**, contains a reassessment of the hydrology of tropical montane cloud forests by L.A. (Sampurno) Bruijnzeel, and a series of articles on various aspects of problems associated with invasive alien species. These include their hydrological impacts and economic costs, integrated approaches to controlling them,and economic instruments and institutional arrangements that could potentially be used to support these efforts. The issue also featuresSouth Africa's Working for Water Programme (designed to eradicate invasive alien species to improve water supply while also reducing poverty and unemployment), including an evaluation and a discussion of the inherent social challenges.

Source: FLOWS List see Pg 60

New IUFRO Working Party on Sustainable Management and Genetic Resources of Meliaceae

The IUFRO (International Union of Forest Research Organizations) working party - 1.07.19 "Sustainable management and genetic resources of Meliaceae" serves as a forum for exchange of information on the sustainable management and genetic resources of Meliaceae, particularly the Swietenioideae (mahogany, Spanish cedar, etc.). Our principal means of communication is a mailing list, maintained by the Center for Research and Higher Education in Tropical Agriculture (CATIE), Costa Rica. Please join us!

The announcement about the working party and email list is available at: **www.catie.ac.cr/catie/DirFun/Listas/iufro. htm** in Spanish, English, French, and Portuguese. Please tell your friends and colleagues!

If you have any questions or comments, please contact Sheila Ward at: seward@caribe.net

ForestSAT Symposium on Operational Tools in Forestry using Remote Sensing Techniques.

The British Forestry Commission is organising an international symposium in

Edinburgh the 5th to the 9th of August 2002, to raise awareness about existing remote sensing technique tools between forest managers. This event intends to bring along those tools currently used worldwide and to show their potential application in European forestry. This symposium is partly funded by the EU LIFE programme FORESTSAFE, which covers the main organisation and the publication of the proceedings. In addition, we are planning parallel activities such as a one-day seminar about optical, radar and lidar systems with their possible applications in forestry; and exhibits with commercial products like software, data capture and consulting. After the symposium, we want to compile the most relevant applications in a peer-review publication.

Objectives

Remote sensing techniques have been developed over the last decades and nowadays some of them constitute important operational tools for forest management. Remote sensing methodologies are rapidly penetrating a number of application domains such as forest inventory, management of abiotic hazards, health monitoring, pollution control, timber extraction, production forecast, landscape architecture, the provision of recreation facilities and many others. In addition, remote sensing techniques are a valuable source of spatial information when combined with the Geographic Information Systems. Remote sensing data are extensively used in spatial models for decision support in forestry. The symposium programme intends to address all the remote sensing techniques such as aerial photography, radar, lidar, optical systems and thermography. Additionally, the workshop would like to invite solutions for primary data transfer including the use of the World Wide Web, data compression techniques, visualisation and mobile computing.

Who should attend

The purpose of the symposium is to show forestry managers, forest practitioners, policy makers, planners and scientists examples of operational tools developed from remote sensing techniques. The organisation of this symposium would like to bring together developers and users of these technologies into a common forum where both can be informed about the development and application of those tools regarded as operational. The symposium would also provide an opportunity for users to provide feedback about their requirements in future tool's developments.

Call for papers

Papers are invited on the topics outlined in the main areas of interest and others falling within the scope of the meeting. Abstracts of no more than 300 words should be submitted to the Symposium Secretariat before the 28th of February 2002.

Each paper will be allocated 20 minutes, 15 minutes for presentation and 5 minutes for questions and discussion. Each abstract will start with an invited keynote speaker. Abstracts should clearly state the purpose, results and conclusions of the work to be described in the final paper. Final acceptance will be notified by the 31st of May 2002. Full-length papers will be submitted before the 30th of June.

The language of the symposium will be English.

Abstract submission

Please submit your abstract including your name, full address and symposium topics
Registration forms are available in the Symposium Official Web site
www.forestry.gov.uk/ForestSAT
Email: ForestSAT@forestry.gsi.gov.uk
Fax Submission: +44 (0)131 445 5124
Mail: Abstracts should be sent to:

Juan C. Suáárez, ForestSAT symposium
Forest Research, Northern Research Station
Roslin, Midlothian EH25 9SY
United Kingdom

Venue
Heriot Watt University in Edinburgh
Duration: Three days conference, one day optional seminar and one day for a field excursion.

Exhibitors Information
The organisation of the symposium have made available a limited number of space for exhibits. These facilities are ideal for organisations wishing to exhibit software, hardware, products, services and literature relating to the theme of the symposium. Further details are available in the exhibitors page and the symposium secretariat (+44 (0)131 445 2176)

Preliminary seminar
Prior to the symposium, there will be an introductory seminar on the fundamentals of the most relevant remote sensing techniques applied to forestry like radar, optical systems and lidar. The seminar will be conducted at Edinburgh University on Monday the 5th of August 2002. Attendance is optional. Further details are available in the seminar page and the symposium secretariat
(+44 (0)131 445 2176)

ForestSAT Symposium in Edinburgh.
August 5-9th 2002 'Operational Tools in Forestry using Remote Sensing Techniques'

INTERNATIONAL AGRICULTURAL CENTRE (IAC) WAGENINGEN, THE NETHERLANDS TRAINING PROGRAMME ON LEADERSHIP AND ADAPTIVE MANAGEMENT IN FOREST ENVIRONMENTS

Duration: 1-11 weeks
Period: September- November 2002

We are pleased to inform you about IAC's new training programme on collaborative adaptive forest management (CAFM) and biodiversity conservation (BC). The course is designed for managers, co-ordinators, senior staff, policy-makers, trainers and researchers, involved in the policy and practice of collaborative forestry and nature management. They wish to renew, broaden and strengthen their professional and leadership qualities and share experiences with colleagues from other countries and continents, and are committed to critically assess their own work and environment.

Course Focus
Collaborative adaptive forest management aims to achieve a balance between the conservation and utilisation of forest resources in the pursuit of rural development and sustainable livelihoods in complex and dynamic environments. Therefore, foresters who work in CAFM require a balance of social and technical skills and insights. In response to this need the programme covers the following broad areas of interest: collaboration and decision-making between stakeholders, integrated land use, sustainable adaptive forest management, biodiversity conservation, poverty reduction, equity and empowerment. Training is based on experience-based and task-oriented learning, which participants and resource persons develop together.

Outline of the programme
The training programme offers five short courses and one seminar, addressing different aspects of collaborative adaptive forest management. Although each of the courses is designed to stand alone, the programme permits various combinations. The full course program comprising all six elements provides a comprehensive package on collaborative forest management and bio-diversity conservation. The programme consists of the following short courses:

Professional qualities for facilitation and collaboration in NRM, 9-20 Sept.

Leadership, organisational change and interactive planning for adaptive forest management, 23 Sept-4 Oct.

Design, management and evaluation of collaborative forestry programmes, 7-18 Oct.

Seminar on science, learning and social change in forest management, 21-23 Oct.

Sustainable forest management and bio-diversity conservation, 28 Oct-8 Nov.

Integrated land use planning & environmental impact assessment, 11-22 Nov.

More information and application forms can be obtained from our website or from the address below:
IAC, P.O. Box 88, 6700 AB Wageningen, The Netherlands
Telefax: + 31 317 495 395
E-Mail: Training@IAC.AGRO.NL

By Bert van der Linden

Indigenous people conserving the rain forest?

J.Demmer & H. Overman

(Reviewed by Miriam Ros)

The creation of markets and trade plays a central role in strategies that aim to merge conservation goals with improved local welfare. But increased wealth and exposure to markets may have unforeseen side effects. Josefien Demmer and Han Overman studied these effects among Tawahka Indians in Honduras. TBI published the results.

The Tawahka Asangi Biosphere Reserve in Honduras was created in 1999 to reconcile the conservation of biodiversity with sustainable use and the protection of indigenous land rights. Despite this protected status, the Tawahka territory is not free from the effects of the market. The results of this study suggest that people intensify their use of forest resources as their links with outside economies and wealth are strengthened.

Differential impacts

Increasing levels of wealth and integration into the market appear to result in higher *per capita* pressure on forest resources. Some species face more pressure than others, however. Plants that provide thatch and timber for canoes and board, in particular, face more intensive exploitation with increased integration and wealth, while red brocket deer, peccaries, spider monkeys and some birds are among the animal species that are more intensively hunted.

The effects of integration into markets cannot be assessed, however, on the basis of extraction data alone. The authors argue that the effects of income-generating forest use and increases in the area of cultivated land should also be taken into account. For example, cash generated by ecotourism may have negative side effects on the forest, because of agricultural expansion.

There are also the dynamics of foraging economies. Most of the wealthier and more integrated Tawahka households have abandoned forest-based activities for more profitable occupations (e.g. agriculture, shops, wage labour). It is also highly probable that more prosperous communities increase in population size. The authors therefore conclude that increasing wealth and integration into markets are likely to lead to the concentration of people in one place, as well as to higher rates of *per capita* consumption. They expect that "sooner or later, the need for management and collectively accepted agreements on forest resource use will be required."

In order to reduce pressure on certain species, the two researchers suggest:

- exploring the possibilities for setting up pig farms;
- discouraging sales of canoes and boards to outsiders;
- establishing mixed tree plantations and introducing wood preservatives, lesser-known species and Amazonian canoe-building techniques.

Incentives

Demmer and Overman demonstrate that the annual value of the forest accruing to the Tawahka ranges from US$ 17.8 to 23.7 per hectare. This combined value of consumption and the sale of forest goods is only a small fraction of the value that the global community attaches to services of the forest like climate regulation, CO_2 absorption and erosion reduction. This leads to the conclusion that the global community should consider compensating

villagers for foregone benefits if they would be willing to refrain from activities that lead to deforestation and forest depletion. This would increase the financial incentives for conservation as well as raise local welfare. The specifics of such mechanisms should be negotiated between policy makers, NGOs and indigenous groups. Demmer and Overman believe that this could be a promising long-term management strategy for indigenous reserves, because it covers the direct interests of the stakeholders.

Reference:
Demmer, J. and Overman, H. (2001). *Indigenous people conserving the rain forest? The effect of wealth and markets on the economic behaviour of Tawahka Amerindians in Honduras.* Tropenbos Series 19. Tropenbos International, Wageningen, the Netherlands. ISBN: 90-5113-053-8.

This publication can be ordered at:
Tropenbos International,
PO BOX 232, 6700 AE Wageningen,
The Netherlands.
Tel: +31-317-495500;
Fax: +31-317-495520;
e-mail: tropenbos@tropenbos.agro.nl
http://www.tropenbos.nl

ASB's Policy Briefs series

The Alternatives to Slash-and-Burn Programme (ASB) is a global partnership of over 50 institutions around the world with a shared interest in conserving forests and reducing poverty in the humid tropics. The global programme unites research institutes, NGO's, universities and other partners. One of its objectives is to provide fora for exchange of information, developing consensus and managing conflicts. The methods already used by ASB to disseminate knowledge and experience include workshops and detailed project reports focusing mainly on specific countries. But until now the consortium has had no vehicle for distilling the lessons derived from experiences at the local or national level for a broader, international audience. The new ASB Policy Briefs series is meant to be the vehicle to deliver relevant, concise information to key people whose decisions will make a difference to poverty reduction and environmental protection in the humid tropics.

Topics that will be covered in the series include the quantification of carbon storage and the trade-off between biodiversity and profitability in different land-use systems, the relationships between property rights and land use, and the measures that can be taken to control smoke from land clearing.

ASB can be contacted at:
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ODI Natural Resource Perspectives

This series is published by ODI, an independent non-profit policy research institute (UK), with financial support from the UK Department for International Development (DFID), formerly the Overseas Development Administration (ODA). Natural Resource Perspectives (NRP) present accessible summaries of the latest research and analysis on policy issues in the natural resources sector. The authors are leading experts in their fields.

The papers have been published since 1994 and are issued approximately four times a year.

NRP covers a broad range of issues, varying from case studies on specific items like local financing schemes for small-scale renewable natural resource development in Ghana to items of a more general character such as the examination of prospects and performance of biotechnology in the natural resources sector.

NRP are sent to a wide audience of policy makers, researchers and people working in the non-governmental sector. Readers are encouraged to quote from them or duplicate them, but as the copyright holder ODI requests due acknowledgement. The editor welcomes manuscripts for the series.

NRP are available on ODI's website: www.odi.org.uk/nrp/. It is also possible to receive NRPs by post, free of charge. If you wish to be included on the mailing list, please provide name. Position, organisation, address (email-address is optional) and send it to:
Editor, Natural Resources Perspectives, ODI,
111 Westminster Bridge Road,
London SE1 7JD, UK,
or to nrp@odi.org.uk.

DFID issue: Biodiversity, a crucial issue for the world's poorest

The Department of International Development (DFID) is the UK government department responsible for promoting development and the reduction of poverty. DFID seeks to work in partnership with governments, business, civil society and the research community committed to the International Development Targets agreed by the United Nations in the 1990s. One of the Targets is to make biodiversity work for the poor.

In its publication on biodiversity DFID describes some of the many different ways in which poor people rely on the diversity of life, and the potential of biodiversity for reducing poverty. It also provides an overview of DFID's approach to biodiversity, highlighting strategies that promote both poverty reduction and sustainable use of natural resources.

To find more about the programmes described in this publication see:
DFID's Renewable Natural Resources Research Strategy at www.dfid.gov.uk/public/what/advisory/group6/rld/rnrr.html, or contact:

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Department for International Development,
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Biodiversidad, Conservación y Manejo en la Región de la Reserva de la Biosfera Estación Biológica del Beni, Bolivia

Edited by O. Herrera-MacBryde, F. Dallmeier, B. MacBryde, J.A. Comiskey and C. Miranda (2000)

This book is the result of cooperation between various actors who are involved in efforts in and near the UNESCO Biosphere Reserve Beni Biological Station. The book intends to capture the main work accomplished since the Station was created in 1982 and make the information available for a wide audience.

The book contains many detailed research

reports ordered in 21 chapters, which cover a broad range of topics arranged in 5 sections. The introduction is followed by a section on vegetation, flora and ecology. Fauna and ecology are the subject of the next section. The human factor is dealt with in the section on local communities and resource management. The last section analyses conservation efforts and their effects. Much of the research presented in this book is based on inventories and studies, especially of flora, fauna and ecology. Most research was carried out inside the Reserve, but some took place in nearby areas. Areas studied, methods used and results acquired are presented, using graphs, tables and other figures. Some of the chapters are baseline reports. Chapters are written either in English, with a summary in Spanish, or in Spanish with a summary in English.

ISBN # 1-893912-03-5., SI/MAB Series no.4, Smithsonian Institution, Washington D.C. For further information contact:

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Co-management of Natural Resources Organising, Negotiating and Learning-by-Doing

G. Borrini-Feyerabend, M. T. Farvar, J.C. Nguinguiri and V. Ndangang (2000)

In a joint effort the German Development Agency (GTZ) and the World Conservation Union (IUCN) published a report that is intended to serve as a practical manual for natural resource managers interested in negotiating multi-party agreements and institutions, and in learning by doing. The publication is based on five presentations given at a workshop of the Co-management Network in Maroua, Cameroon, in January 1999. It offers guidelines, checklists, concepts, ideas and a range of methods and tools to facilitate a co-management process. In this publication co-management is defined as a situation in which two or more social actors negotiate, define and guarantee amongst themselves a fair sharing of the management functions, entitlements and responsibilities for a given territory, area or set of natural resources.
The report contains 6 chapters, each comprising one of the phases discerned in achieving the goal of co-management. In the first chapter the concept of co-management and concepts and approaches that contribute to understanding and practising co-management are analysed, followed by the preparatory phase in chapter 2. The negotiation phase is dealt with in the third chapter. Negotiation is followed by learning-by-doing in chapter 4. Chapter 5 provides a summary view on the co-management process. Finally, chapter 6 lists lessons learned and tips for action. Illustrations in the form of outlines, tables and case studies boxes are used to complement the text. The considerable annex provides much additional information.

ISBN 3-925064-30-3, 95 p., Kasparek Verlag, Heidelberg, Germany.

Available from: GTZ-ABS/LISTRA Protected Area Management and Transition Zone Development Project,
Postfach 5180, 65726
Eschborn,

Germany.
Fax: +(49) 6196 79 6190.

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Conflict and Natural Resource Management

Violet Matiru (2000)

This publication is one in the series of the FAO Community Forestry/FTPP Conflict Management Series, which deals with disagreements and disputes over access to, and control and use of, natural resources. It addresses in general terms why conflicts arise, how they manifest themselves and how the actors involved deal with them. In addition, general strategies and approaches to management and resolution of the conflicts are mentioned.

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www.fao.org/forestry/FON/FONP/cfu/cfu-e.stm.

Social Criteria and Indicators for Sustainable Forest Management, A guide to ILO texts

Peter Poschen (2000)

This guide has been prepared by GTZ, the Agency for International Cooperation of the German government and the ILO, the International Labour Office. Many initiatives have been undertaken to formulate indicators and criteria for sustainable forest management. From the beginning, this process has suffered from a bias towards environmental concerns and economic interests. Social aspects were undervalued. Also, the lack of comparability of criteria and indicators internationally hampered the formulation. It was suggested that ILO texts could provide a basis for shared criteria and indicators. This publication intends to fill the gap in knowledge on content and nature of relevant ILO texts that apparently exists among many of the fora discussing criteria and indicators for forestry.

Intended users of this guide are: governments and other stakeholders defining SFM in national policy or legislation, participants in the regional forest policy processes, and individuals and organisations involved in certification schemes and initiatives, whether through setting criteria and indicators, implementing a standard or monitoring compliance. The guide comprises three parts. Part I clarifies the concepts of the terms used such as social, principles, indicators and criteria, and social and labour aspects of sustainable forest management. Part II introduces relevant ILO texts and discusses their application to forestry. Part III presents suggested criteria and indicators based on ILO texts and identifies possible ways in which they can be used to develop or complement standards at the national and forest management unit level. The annexes which make up more than half of the 86 pages present verbatim extracts of the ILO documents referenced in the guide and give

an overview of the ratification of relevant ILO Conventions by member countries.

Working Paper 3, 86 pages, ILO & GTZ.

For further information contact:
International Labour Office (ILO),
Sectoral Activities Department,
4 route de Morillons,
1211 Geneva 22,
Switzerland.
Email: poschen@ilo.org.
Internet: www.ilo.org/sector, or:

GTZ Forest Certification Project,
Postfach 5180, 65726
Eschborn,
Germany.
Email: Dietrich.Burger@gtz.de. Internet: www.gtz.de/forest_certification.

CIMAT (Criteria and Indicators Modification and Adaptation Tool) Version 2

CIMAT is a computer software package designed to help users modify, customise and adapt the CIFOR (Centre for International Forestry Research) C&I generic template and C&I sets of CIFOR plantation, CIFOR community managed forest, International Tropical Timber Organisation, Forest Stewardship Council, African Timber Organisation and the Indonesian Ecolabelling Institute to meet local conditions and expectations. CIMAT allows its users to develop and entirely new set of C&I from an empty set and provides guidance for assessment of C&I using multi-criteria analysis. CIMAT can also be used as a learning tool for those who are merely interested in exploring the C&I knowledge stored on it.

The CD-ROM contains a comprehensive tutorial to help users learn CIMAT interactively and step by step, followed by some case studies. As it is equipped with voice, audio devices will be required. Besides, a user's manual is also available which helps the user to install and use the CD-ROM. Finally, the CD-ROM also contains a collection of CIFOR's C&I research outputs, grouped into four categories; C&I Toolbox, C&I Papers, other related papers and CIMAT related papers.

CIMAT and all-corresponding documents will be updated regularly to keep the knowledge as current and accurate as possible. To be notified when updates are available, check the CIMAT homepage at http://www/cifor.cgiar.org/cimatweb/ie4/acm/htm.

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Internet: http://www.cifor.cgiar.org

Auditing of Sustainable Forest management A practical guide for developing local auditing systems based on ITTO's Criteria and Indicators

S. Appanah & M. Kleine (2000)

The purpose of this guide is to distill a practical tool for assessing the performance of forest management under specific local conditions out of general auditing guidelines. It is intended to assist in developing local, site-specific auditing systems for sustainable management of natural tropical forests that are based on

the ITTO C&I. The auditing system exclusively deals with forest management at the FMU (forest management unit) and operational levels.

The guide provides tools for:

- Formulating aspects to be assessed for each individual indicator,
- Describing how to obtain and evaluate the relevant information;
- Identifying the means (e.g. documents, sources) used for data collection and evaluation;
- Developing norms or audit criteria for the various aspects to be assessed as basis for comparison and evaluation, and,
- Designing a scoring and weighting system in order to synthesise individual evaluation results to an overall audit result for the entire FMU.

In addition, the guide describes the process of developing the auditing system including auxiliary provisions that need to be in place in order to ensure successful implementation of the auditing system. The content of the guide is organised according to the sequence of activities that need to be undertaken in order to develop the complete auditing system and make it operational in the field. After an outline of the overall conceptual framework and structure of the audit system in Chapter 2 the technical aspects of the auditing system development is described in Chapter 3, presenting how assessable parameters and norms for each individual indicator can be identified. In Chapter 4 the process of auditing system development is briefly outlined. Finally, Chapter 5 presents some additional provisions, necessary to ensure meaningful application of the auditing system in the field.

Working Paper 4, 75 pages, GTZ Forest Certification Project, Postfach 5180, 65726 Eschborn, Germany.

Proyectos forestales andinos Experiencias y lecciones aprendidas

This publication presents a synthesis of the lessons learned in forestry activities carried out in the Andes region of Bolivia, Ecuador and Peru during the past two decades. The Swiss Organisation for Development and Cooperation (Intercooperation) has been participating actively as executing agency in forestry development programs in the three countries. The operational experience of this organisation gained in a dozen projects with forestry components forms the basis for this document.

In the introduction of the book the Andes region and the forestry activities in the area are described. The results of all experiences are presented in the form of four lessons that were learnt, such as the fact that the actors in forestry development have been changing over the years. Other lessons concern the land tenure and rural production, economic aspects of forestry in the Andes region, and strategic technical aspects such as native forests and the market for forest products.

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Tranquilidad and hardship in the forest: Livelihoods and perceptions of the *"Camba"* forest dwellers in the northern Bolivian Amazon

A.B. Henkemans (2001)

This PHD-thesis is the result of a study of livelihood assets of *Camba* forest dwellers in the Northern Bolivian Amazon and the people's perceptions of the role of forest in their development. The study was carried out within the Programa de Manejo de Bosques de la Amazonía Boliviana (PROMAB). The aim of the study was to determine the scope for sustainable forest livelihoods in the region from the perspective of Camba forest-dwelling people and their livelihood objectives and based on long-term forest management practices. The study focuses on the different components of the people's livelihoods and the contribution of the forest in the form of assets and services.

The book contains nine chapters, including introduction and conclusions. First, the conceptual framework for the analysis of forest livelihoods is presented, followed by a general description of the research area, its history of forest extraction and the current transformation of forest settlements. Two settlements are presented in detail. The study elaborates on the forest dwellers' access to, categorisation and use of forest resources and analyses and calculates the main commercial and subsistence benefits of the forest resources. Moreover, the contribution of the forest to the forest dwellers' socio-cultural well-being is discussed. Finally, important concepts that have emerged and that are determining for the development of sustainable forest livelihoods in the region are highlighted.

ISBN: 903932905-2, 285 p. PROMAB Scientific Series 5.

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Paving the road for forest destruction Key factors and driving forces of tropical deforestation in Brazil, Ecuador and Cameroon

H. Cleuren (2001)

This comparative study analyses the driving forces of deforestation in Brazil, Ecuador and Cameroon. The research focuses on the dynamics of forest conversion and the adaptability and mobility of the people involved. The study has three components: a theoretical review of the issue of tropical deforestation; three case studies, in Brazil, Ecuador and Cameroon, focusing on the key factors involved in the process of forest decline; and finally an analytical synthesis, in which theories are tested against data and conclusions drawn regarding the deeper mechanisms of forest conversion and the relationships between different actors.

The book is divided in seven chapters. The first component of the study is presented in the first two chapters. The first chapter describes the different categories of tropical rainforests and patterns and causes of deforestation. The second presents a

theoretical perspective on deforestation. The third, fourth and fifth chapter present the three case studies. In chapter six the three case studies are compared and finally in the last chapter a number of solutions that have been proposed for better management of the tropical forest are summarised. In the end general conclusions are drawn and policy recommendations made for more efficient and effective collaboration for sustainable management in the Amazon and Congo basins.

ISBN: 90-5789-068-2, 261 p. CNWS Publications no.118. Leiden Development Studies, New Series, Vol.1. Research School of Asian, African, and Amerindian Studies (CNWS), the Netherlands.

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Research advances in restoration of Iroko as a commercial species in West Africa

J.R. Cobbinah & M.R. Wagner (Eds) (2000)

Iroko is considered as the most generally useful timber species with distribution stretching across the entire width of humid Africa. In the late 1980s the Iroko Project was started as a mono-institutional project at The Forestry Research Institute of Ghana (FORIG) to develop strategies for the sustainable development of Iroko. It grew out to become a multi-country, multi-institutional, and multi-disciplinary study by the mid 1990s.

The papers of the closing workshop in November 2000 are presented in this publication. The papers deal with five themes: distribution patterns of Iroko, growth in relation to ecophysiological factors, screening for phenotypic and genetic resistance, mitigating the impact of *Phytolyma lata*, and deployment of resistant lines.

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The *Prosopis juliflora-Prosopis pallida* Complex: A Monograph

N.M. Pasiecznik (2001)

Prosopis juliflora and *Prosopis pallida* are two of the most economically and ecologically important tree species in arid and semi-arid zones of the world. Therefore, considerable literature on these species exist in various languages. However, few attempts have been made to synthesise this information into comprehensive, concise and authoritative reviews. This monograph draws on all the available sources with approximately 650 bibliographic references included. Along with the associated outputs of a reference database (on CD-ROM) and a technical manual aimed at the Indian context, this publication provides information which aims to improve the management and utilisation of this valuable natural resource.

The book is divided in four chapters. The chapters can be read in any order. The first chapter opens by stating the importance of the *P. juliflora-P. pallida* complex and how

and why these species were selected for special attention, before describing the genus in general and its relationship to mankind. Chapter two covers the complicated area of *Prosopis* taxonomy. Chapter three describes in detail the *P. juliflora-P. pallida* complex as a human resource, the composition, roles and production of tree products. The final chapter covers the management of the trees as resources, including nursery production, establishment, managing native stands and weedy invasions, and processing tree products.

This publication is an output from a research project funded by the United Kingdom Department for International Development (DFID) for the benefit of developing countries. Copies of this publication are available free to people and organisations in countries eligible for UK aid, and at cost price to others. For request please contact:
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Programme SAFORGEN Réseau "Espèces Ligneuses Médicinales"

O. Eyog Matig et al (2001)

The SAFORGEN programme stands for research on the genetic resources of Africa's forests south of the Sahara. This publication presents the results of research on the woody plant species with medicinal properties in reports from 9 countries, complemented by papers on issues like biodiversity, exploitation and the development of the sector of medicinal plants. The reports and papers were presented at a meeting of the so-called "network on medicinal woody plant species" in 1999 in Cotonou, Benin, which was attended by 30 experts from 12 countries.

ISBN 92-9043-470-8, 131 p. For more information contact:

IPGRI Regional Office for sub-Sahara Africa, c/o ICRAF,
P.O.Box 30677,
Nairobi,
Kenya

Journal of Bamboo and Rattan

J.J. Jansen (Editor-in-Chief)

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